



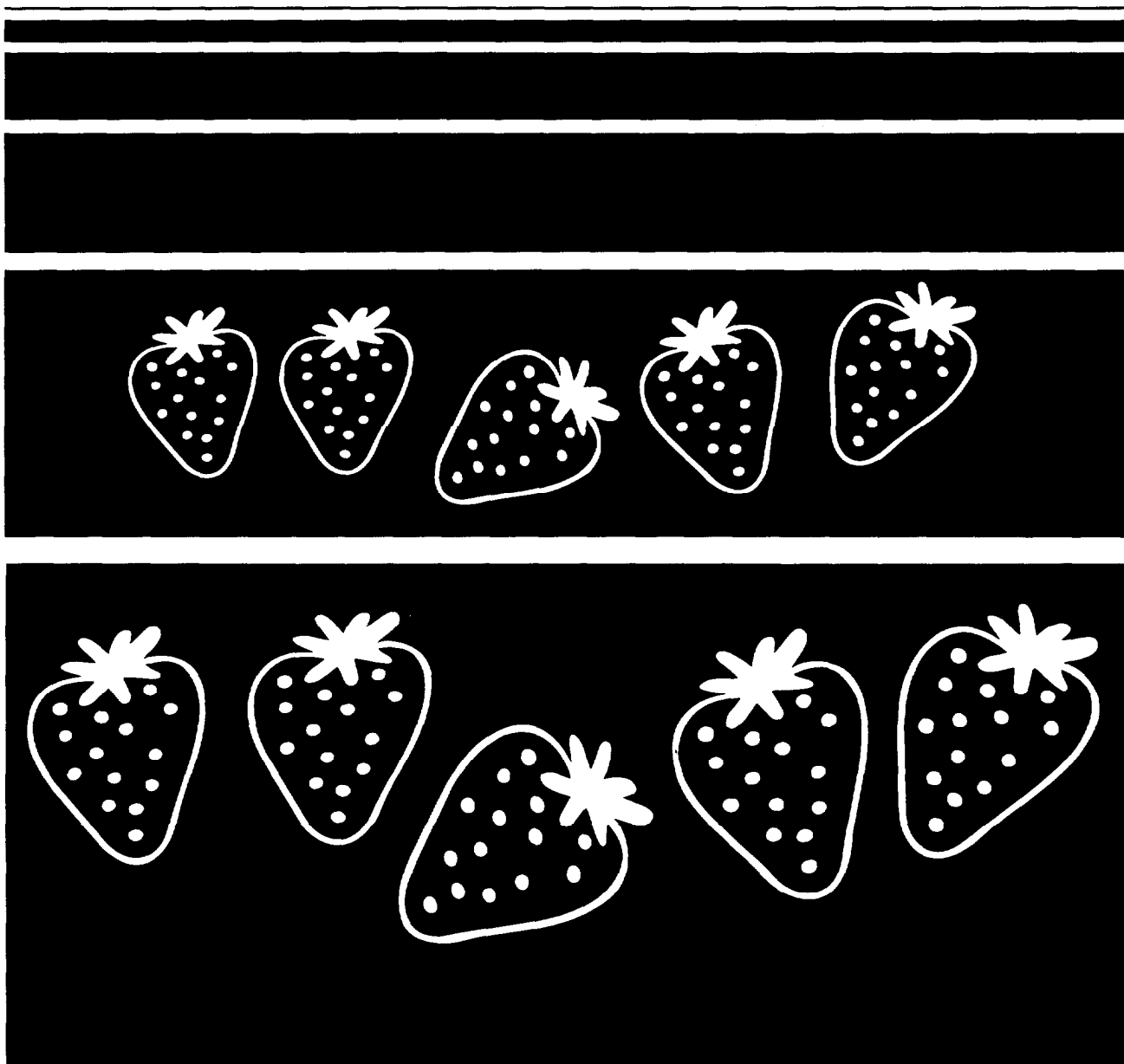
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# The U.S. Strawberry Industry

Diane Bertelsen



## **Abstract**

Record-high U.S. strawberry production in 1993 and another large crop anticipated in 1994 continue the growth trend that began in the 1970's. California produced nearly 80 percent of the U.S. crop on less than half of the strawberry acreage due to higher output per acre than other States. Grower and retail prices for fresh strawberries usually follow strong seasonal patterns and are below average in April, May, and June. Retail prices for fresh strawberries have kept pace with inflation since 1980, while grower prices have not. Americans are eating more strawberries grown in the United States, and per capita consumption has grown from 3 to 5 pounds since 1970.

**Keywords:** Strawberry, production, prices, trade, shipments, consumption.

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## Summary

The U.S. strawberry crop was a record-large 1.4 billion pounds in 1993, up 8 percent from the 1992 crop and 14 percent above the 1988-92 average. Another large crop is anticipated in 1994, continuing the growth trend that began in the 1970's. This report describes the U.S. strawberry industry from 1970 to 1993, and emphasizes changes since the early 1970's that have affected the availability and prices of strawberries. The report compares the cultural practices and marketing seasons of the major producing States of California, Florida, and Oregon, but the most detail is given for California. California produced nearly 80 percent of the 1993 crop on less than half of the strawberry acreage due to higher output per acre than other States.

Americans are eating more strawberries grown in the United States, and per capita consumption has grown from 3 to 5 pounds since 1970. Strawberries were the fourth most valuable fruit produced in the United States in 1993 and, considering only fresh-market fruit, were second only to apples in value. Strawberry crop values have risen more by production gains than by higher prices. Grower and retail prices for fresh strawberries usually follow strong seasonal patterns and are below average in April, May, and June. Retail prices for fresh strawberries have kept pace with inflation since 1980, while grower prices have not.

U.S. strawberry acreage in 1993 was only slightly more than in 1970, but nearly three times as many berries per acre were produced in 1993. More acreage in California, where per acre yields are relatively high, and improved yields in other States raised the U.S. average strawberry yield from 9,800 pounds per harvested acre in 1970 to 27,600 pounds in 1993. California's share of U.S. strawberry production rose from less than 60 percent in the early 1970's to nearly 80 percent in the 1990's, while Florida's share increased from 4 percent to 10 percent. In contrast, Oregon's share of production fell from 14 percent to 5 percent.

California has a longer growing season than other States, and strawberries can be picked nearly every month. The strawberry-growing area extends about 500 miles, from San Diego to San Francisco. The increase in California's per acre strawberry yields resulted from the adoption of an annual planting system that uses soil fumigation to eradicate pests and the development of new strawberry varieties better suited to both the system and California growing conditions.

Data from the 1987 Census of Agriculture (the latest census data available) indicated that California strawberry growers were more specialized than Florida or Oregon growers. Only 22 percent of California strawberry growers also produced vegetables and melons compared with 50-55 percent of Oregon and Florida growers. California and Oregon had both large and small strawberry-producing operations: 37 and 38 percent with crop sales of \$100,000 or more and about 25 percent each with sales of \$10,000 or less. About half of Florida strawberry growers reported crop sales of \$100,000 or more and only 12 percent sales of \$10,000 or less.

Most of the U.S. strawberry crop is fresh marketed. In the last 3 years, about 70 percent of California's strawberries, virtually all of Florida's strawberries, and only about 10 percent of Oregon's strawberries were fresh marketed. Since the early 1980's, strawberry shipments from California have increased in all months and more than doubled in July and August. However, production peaks are still evident, with 42 percent of California's 1991-93 fresh strawberry shipments in April and May.

The United States is a major producer and consumer of strawberries. Imports of both fresh and frozen strawberries have declined since 1970, while U.S. consumption grew from 3 to 5 pounds per person between 1970 and 1993. Mexico has supplied nearly 90 percent of U.S. strawberry imports in the last 5 years, and the United States is Mexico's major strawberry export market. Canada and Japan are the main destinations for U.S. exports of fresh and frozen strawberries.

# **The U.S. Strawberry Industry**

Diane Bertelsen

## **Introduction**

This report describes the U.S. strawberry industry from 1970 through 1993, and emphasizes changes since the early 1970's that have affected the availability and prices of strawberries. Differences between cultural practices and marketing seasons in the major producing States--California, Florida, and Oregon--are emphasized. The most detail is given about strawberry production in California.

Topics include where and how strawberries are grown in the United States; the trends and seasonal patterns of shipments, stocks, and prices; supplies and consumption of fresh and frozen strawberries; and world production and trade of fresh and processed strawberries.

The report contains information from a variety of sources, including the National Agricultural Statistics Service, Agricultural Marketing Service, and Foreign Agricultural Service of the U.S. Department of Agriculture (USDA); the Bureau of Labor Statistics of the U.S. Department of Labor; the Bureau of the Census of the U.S. Department of Commerce; the California Strawberry Commission; the Processing Strawberry Advisory Board of California; California Agricultural Statistics; the American Frozen Food Institute; and the Food and Agricultural Organization of the United Nations.

## **Production Trends**

### **Record-High U.S. Strawberry Production**

The U.S. strawberry crop was a record-large 1.424 billion pounds in 1993, up 8 percent from 1992 and 14 percent above the 5-year (1988-92) average. The top three strawberry-growing States in 1993 were California, Florida, and Oregon, in that order, as they have been since 1980. Strawberry production has been on an upward trend in California and Florida but declining in Oregon and some other smaller producing States (fig. 1, table 1).

California's 1993 strawberry crop was 1.138 billion pounds, 10 percent more than in 1992, and accounted for 80 percent of total U.S. output. Florida produced 138 million pounds of strawberries in winter 1992/93, down about 2 percent from the record-large 1991/92 crop. Strawberry output in California and Florida continued to rise, up 17 and 6 percent from the 5-year average. Oregon's 1993 strawberry crop was 62 million pounds, up slightly from the prior 2 years but down 13 percent from the 5-year average.

Strawberry production in 10 other States totaled 86 million pounds in 1993, up 6 percent from both the prior year and the 5-year average. New York was responsible for most of that gain, producing a record 23 million pounds in 1993. Strawberry crops in Michigan, Washington, Louisiana, and North Carolina were each 10-12 million pounds, and less than 6 million pounds were produced in Ohio, Pennsylvania, Wisconsin, New Jersey, and Arkansas.

### **Rising Value of Production**

The value of the 1993 strawberry crop set an all-time record, \$746.6 million, rising for the 4th consecutive year. Strawberries are the fourth most valuable fruit produced in the United States, following grapes, apples, and oranges. Although strawberry crops in the 1990's have been less than half the value of the orange, apple, and grape crops, strawberries were nearly twice the value of pear, grapefruit, and peach production (table 2). Of all fresh-market fruit produced in the United States, strawberries are second only to apples in value. The farm value of fresh-market strawberries averaged \$584 million in 1991-93 and oranges \$539 million compared with \$1.208 billion for fresh apples. The value of U.S.-grown fresh grapes averaged \$436 million in 1991-93. More than

half of the apples and strawberries grown in the United States go to the higher valued fresh market, while 90 percent of oranges and three-fourths of grapes are processed (table 3).

The value of fresh strawberry production has been growing faster since 1970 than fresh grapes, oranges, or apples. Increased production pushed up annual strawberry crop values more often than did higher prices. The prices received by strawberry growers have not kept up with inflation. However, strawberry production tripled between 1970 and 1993, and the real value of strawberry production (measured in constant 1993 dollars) nearly doubled.

### **More Strawberries From California and Florida**

U.S. strawberry output has been climbing fairly steadily since 1970, with somewhat larger gains in the 1980's. and has become more concentrated in California and Florida. California provided nearly 80 percent of all U.S.-produced strawberries in 1990-92 compared with not quite 60 percent in 1970-72. At the same time, Florida's share of U.S. strawberry production rose from 4 to 10 percent, while production in most other States declined (tables 4 and 5).

Oregon's strawberry output was 10 percent lower in the early 1990's than it had been in the early 1970's. Strawberry production had dropped nearly 50 percent to a low of 34 million pounds in 1978 before rising to 63 million pounds in 1990-92. Oregon provided just 5 percent of U.S. strawberry production in the 1990's compared with 14 percent in 1970-72.

In addition to California, Florida, and Oregon, 20 other States reported strawberry production in the early 1970's and accounted for nearly a fourth of the U.S. crop. Later in the decade, commercial production declined and the U.S. Department of Agriculture (USDA) stopped gathering strawberry data from 10 of the 20 States. The other States still reporting provided just 6 percent of U.S. strawberry crops in 1990-92. As strawberry output in Michigan and Washington declined, their shares of U.S. crops dropped from 5 percent in 1970-72 to 1 percent in 1990-92. However, strawberry output in New York and North Carolina increased, and each State's share of U.S. production remained about 1 percent.

### **Higher Yields Raised Production**

Total harvested strawberry acreage in the United States was up only about 2 percent in 1993 (51,530 acres) compared with 1970 (50,400 acres). Higher average yields were responsible for production gains as acreage shifted to high-yield areas. Between 1970 and 1993, strawberry acreage in California rose from 8,500 to 25,000 acres and in Florida from 1,800 to 5,100 acres. Acreage in most of the other strawberry-growing States (except New York, North Carolina, and Pennsylvania) was lower in 1993 than in 1970 (figs. 2 and 3, tables 4 and 5).

In the early 1970's, Oregon had more acres of strawberries than did California. However, Oregon's acreage declined rapidly during the mid-1970's and was down from 11,000 acres in 1970 to 5,000 acres in 1978. Increased supplies of frozen berries from Mexico as well as expanding California production brought lower processing prices, and Oregon growers consequently planted less. Strawberry area in Oregon fluctuated during the 1980's, rising to 7,800 acres in 1987-88 before dropping back to 6,200 acres in 1993.

Although total U.S. strawberry acreage was nearly the same in 1993 as in 1970, nearly three times as many strawberries were produced per acre. More acreage in California, where per acre yields are relatively higher, and improved yields in other States raised the U.S. average strawberry yield from 9,800 pounds per harvested acre in 1970 to 27,600 pounds in 1993. California produced nearly 45,500 pounds per acre in 1993, up about one-third from 1970. Florida's strawberry yields more than tripled since 1970, averaging 27,000 pounds per acre in 1993. Oregon's average strawberry yield rose 54 percent from 1970 to 10,000 pounds an acre in 1993.

Figure 1

## U.S. strawberry production

Million lbs.

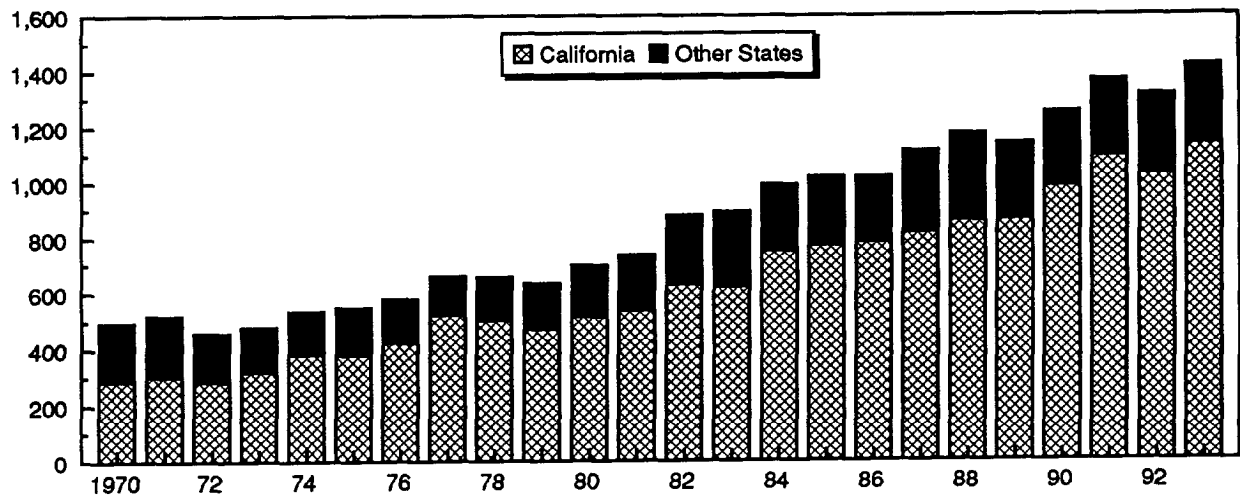


Figure 2

## U.S. strawberry area

1,000 acres

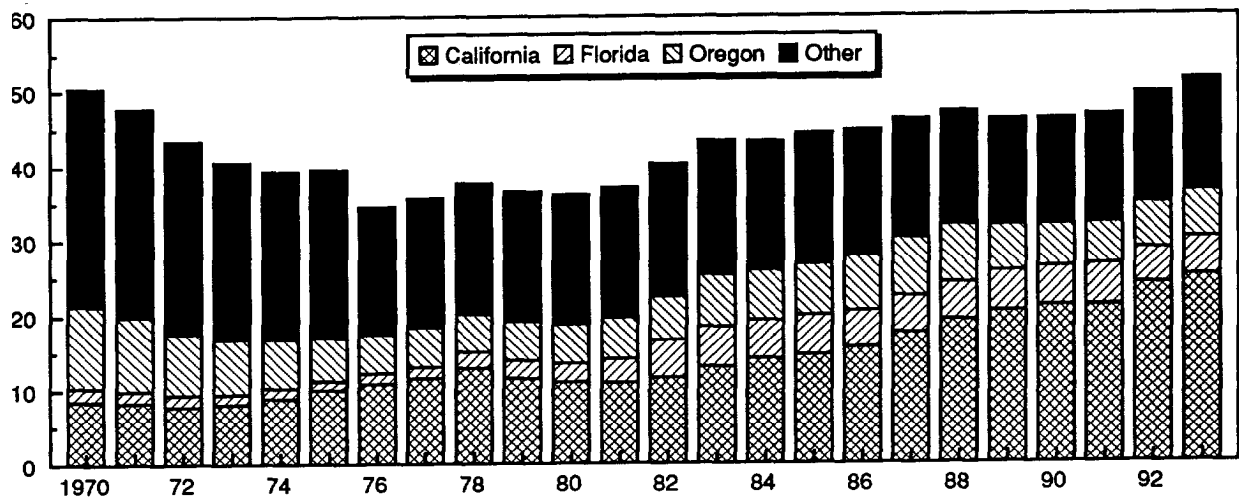
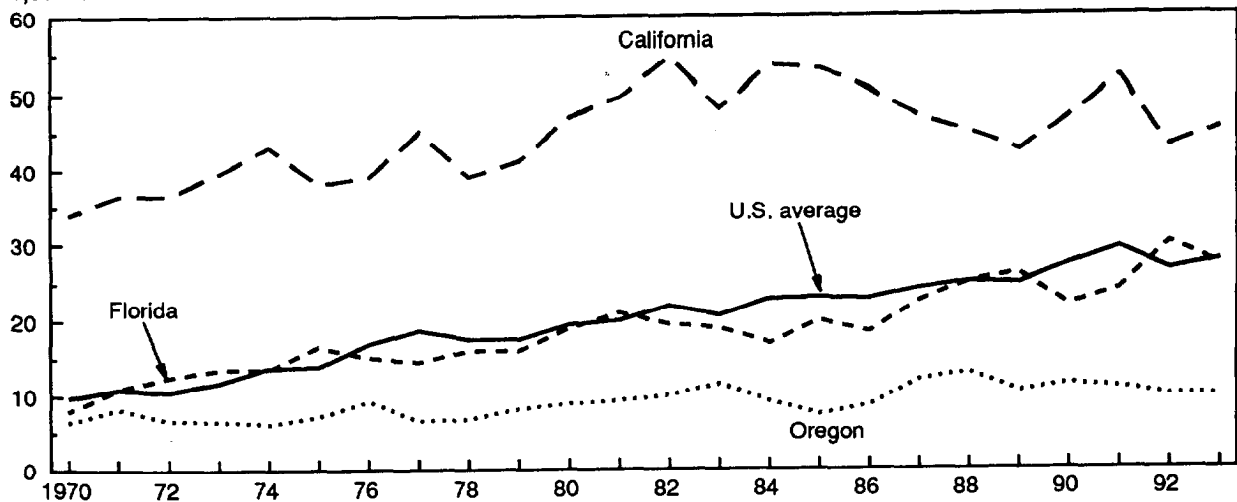


Figure 3

## U.S. strawberry yields

1,000 lbs.





## **Production Regions**

### **Cultural Practices**

Higher output per acre enabled California to produce nearly 80 percent of U.S. strawberries on less than half of the U.S. strawberry acreage in 1993. The increase in yields resulted from California's adaptation of its old planting system to an annual planting system that uses soil fumigation to eradicate pests. In addition, the development of new varieties better suited to the system and California growing conditions raised per acre yields and extended the harvest season.

Strawberries are grown as an annual crop in California. Nursery plants are set out in October or November (winter-planting system) and from late-July through September (summer-planting system). Plants are replaced the following year, rather than allowed to bear crops for several years as in some other States. In 1993, less than 16 percent of California's strawberry acreage was second crop.

Several weeks before planting, the soil is fumigated with a combination of methyl bromide and chloropicrin applied under a sealed plastic tarp, which is removed after at least 48 hours. Plants are set by hand into deep, narrow grooves on premoistened beds. Clear polyethylene mulch is applied, usually in November, to warm the soil and increase early plant growth. If bed fumigation is used, plants are set through slits in the plastic, which stays in place until the plants are removed. Florida has adapted its system to match the California system, except black plastic is used, as have other Southeastern States, with some modifications for colder winters.

Strawberries are grown as a perennial crop in the Northwest and most Eastern States. In Oregon, plants are usually set out in April and do not bear fruit until June the following year. Strawberry plants produce for 4 or 5 years in Oregon before being replaced. Yields per acre are lower in Oregon than California, but so are the costs of production since only about one-fourth of the area is replanted each year.

California's 12-month growing season also contributes to higher strawberry yields per acre. Other States have strawberry-growing seasons of about 5 months. A longer season, as well as the extended production cycles of new varieties, allow strawberry plants in California to produce fruit for 6 months or longer, rather than 4 weeks as in other States. Oregon strawberries are picked in June and Florida's strawberries between November and April, but some berries are picked nearly every month in some area of California.

### **California Strawberry-Growing Areas**

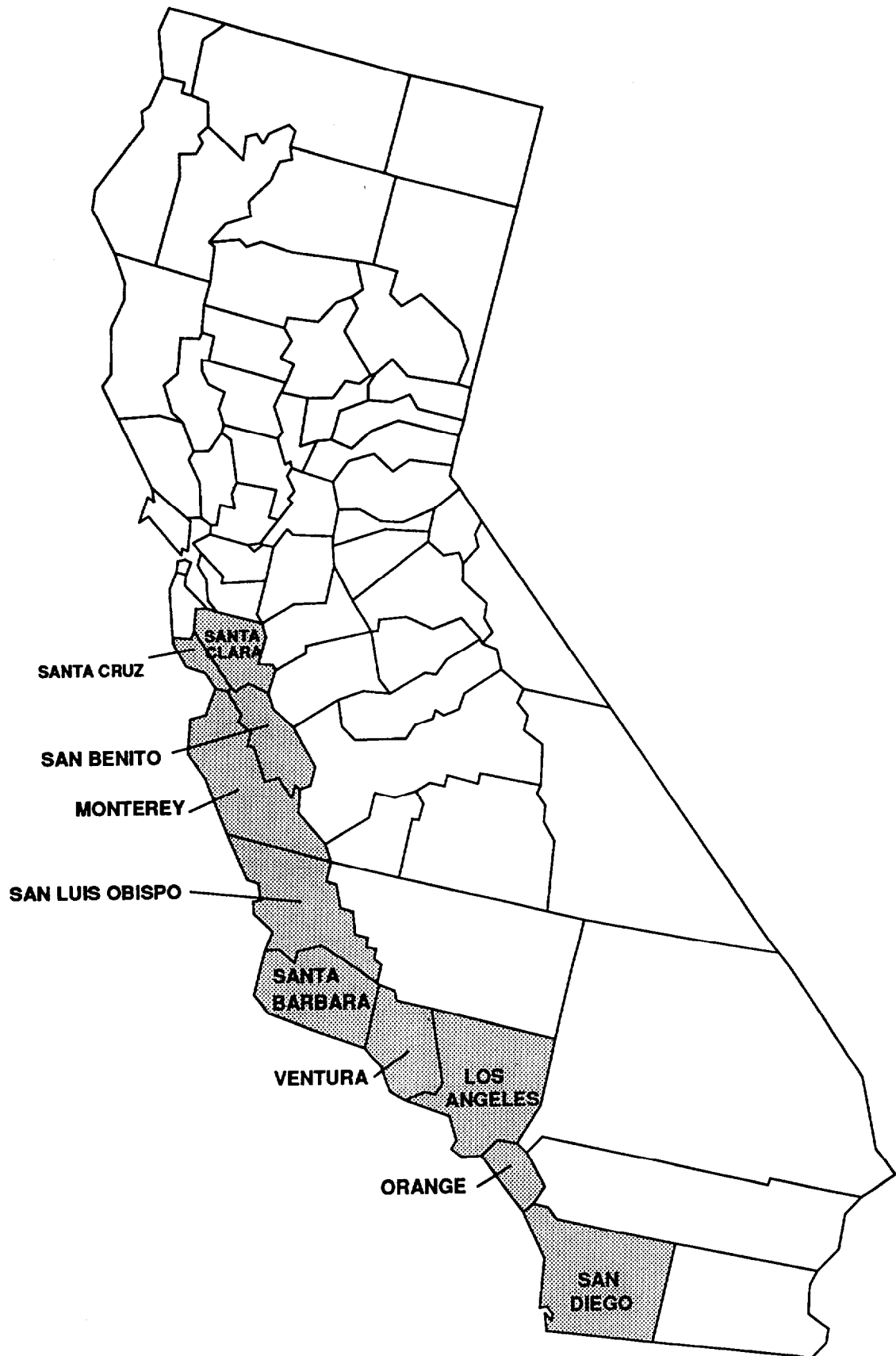
California's strawberry-producing regions extend 500 miles from San Diego to San Francisco (fig. 4). The earliest strawberries are from three southern California counties--San Diego, Orange, and Los Angeles. Harvest is from January through May, with fresh-market shipments usually peaking in April (table 6). The Oxnard area, located in Ventura County just north of Los Angeles, provides fresh strawberries from January until June, with deliveries to processors from April to July. In the Santa Maria area, north of Oxnard, picking usually starts in late February and lasts through November. Fresh-market strawberry shipments from Santa Maria usually peak in May, while deliveries to processors are largest during March and April.

California's northernmost strawberry-growing region is south of San Francisco and includes Watsonville and Salinas in Santa Cruz and Monterey Counties and some acreage in Santa Clara, San Benito, and Fresno Counties. Watsonville and Salinas accounted for 42 percent of California strawberry acreage in 1993 (table 6). Shipments from northern areas begin in April, peak in May or June, and continue through November. Deliveries to processors begin in April, but end before the last fresh strawberry shipments.

Most northern California strawberries are fresh marketed, with deliveries to processors amounting to only about 10 percent of 1990-92 shipments. Deliveries to processors accounted for more of the other areas' output: nearly 30 percent of shipments from Santa Maria, 44 percent from Oxnard, and 60 percent from the southernmost counties.

Figure 4

## Strawberry-growing counties in California



## **Florida Strawberry-Growing Areas**

Hillsborough County is the hub of Florida strawberry production with 90 percent of the planted area. Strawberries are also grown in the adjacent Pasco, Polk, and Manatee Counties, as well as Collier and Dade Counties in south Florida. Most out-of-State shipments come from the Plant City-Dover area in west-central Florida, between Tampa and Orlando (fig. 5).

## **Oregon Strawberry-Growing Areas**

Strawberries are grown in the cool, marine climate west of the Cascade Mountains in the Northwest. Most Oregon berries are from the northern Willamette Valley. Production was reported for eight counties in 1991-93, but Marion and Washington Counties in northwest Oregon accounted for two-thirds of the State's strawberry output. The strawberry-growing area extends north from Oregon through Washington to the Fraser Valley in British Columbia (fig. 6).

## **Strawberry Varieties**

### **California Strawberry Varieties**

California's strawberry industry has benefited from the development of new varieties at the University of California and by private companies. Two varieties, Chandler and Selva, which were released by the University of California in the mid-1980's, accounted for nearly three-fourths of California's 1993 strawberry acreage, according to a survey conducted by the California Strawberry Commission (fig. 7).

Chandler has become the most abundant variety, supplanting the once-dominant Douglas variety in the late-1980's. In 1993, Chandler accounted for 46 percent of all California strawberry acreage. Chandler has higher yields per acre, firmer fruit, and better flavor than Douglas, but a shorter period of peak production. Chandler berries are ready about 2 weeks later than Douglas, with more extreme production peaks in late March and April.

The second most abundant variety in 1993 was Selva, which represented 27 percent of California acreage. Selva produces large, firm berries over an extended time period (6 to 9 months) due to its "day neutral" characteristic, meaning it will continue to flower regardless of day length. Seascape is a recently introduced variety that has a production cycle similar to Selva, with even better flavor, shape, and higher yield per acre. Seascape accounted for 5 percent of California's 1993 acreage.

Pajaro is considered a premium strawberry variety, with symmetrical shape and good color and flavor, but it can be difficult and expensive to grow. Although planted in August in the Salinas area, production doesn't begin until the following April. Pajaro production peaks in May and drops off sharply within a few weeks. Selva and Seascape are planted later (in November) and usually bear fruit earlier than Pajaro. The popularity of Pajaro declined to just 6 percent of California acreage in 1993.

Oso Grande is a firm, large berry, with a steadier production period than Chandler. Suited to warmer climates, Oso is grown from Santa Maria south to San Diego. Introduced in the late 1980's, Oso Grande accounted for 4 percent of 1993 California strawberry area.

In addition to the strawberry varieties just listed that were developed at the University of California and released to the public, private companies have developed new varieties. Driscoll Strawberry Associates, Inc., has several proprietary varieties known for their heart shape, pale color, and high quality. Well-Pitt, Inc., developed and grows two private varieties that provide conical, dark red berries with good flavor, aroma, and shelf life at a fairly steady pace from the first of May through October. Proprietary and other varieties were 12 percent of California's 1993 strawberry acreage.

Figure 5

## Strawberry-growing counties in Florida

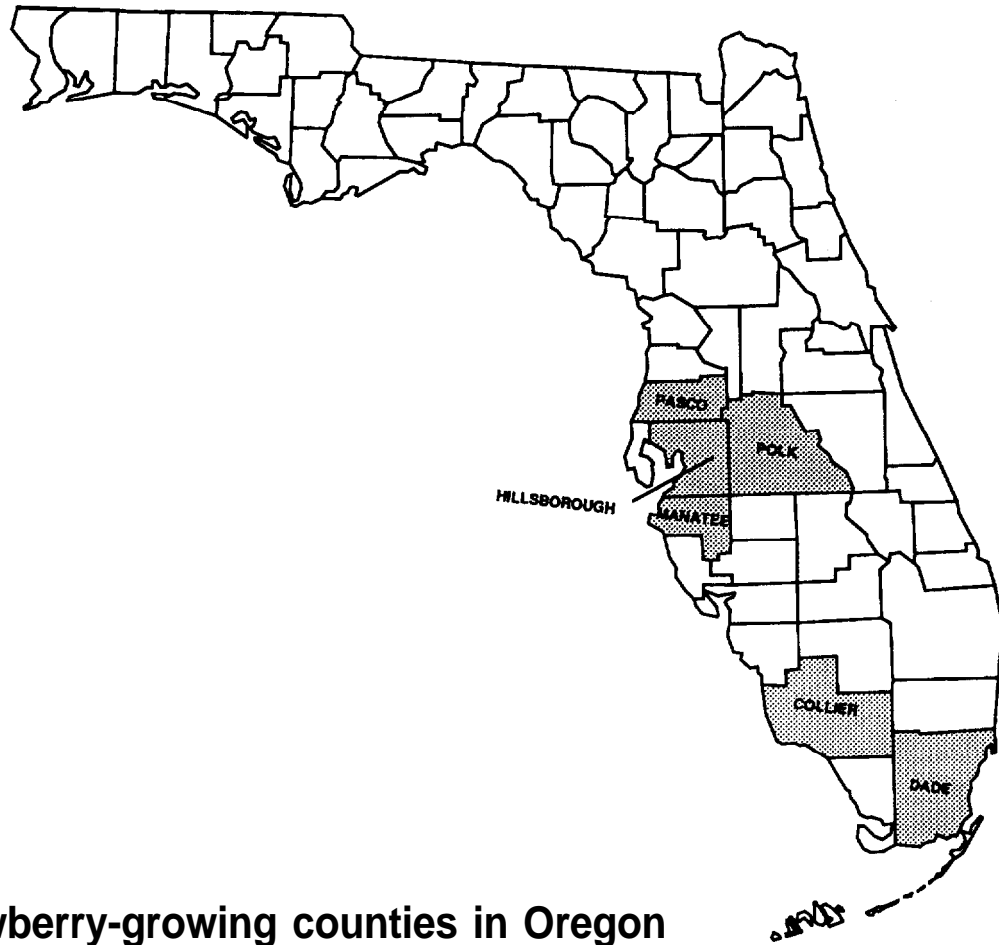


Figure 6

## Strawberry-growing counties in Oregon

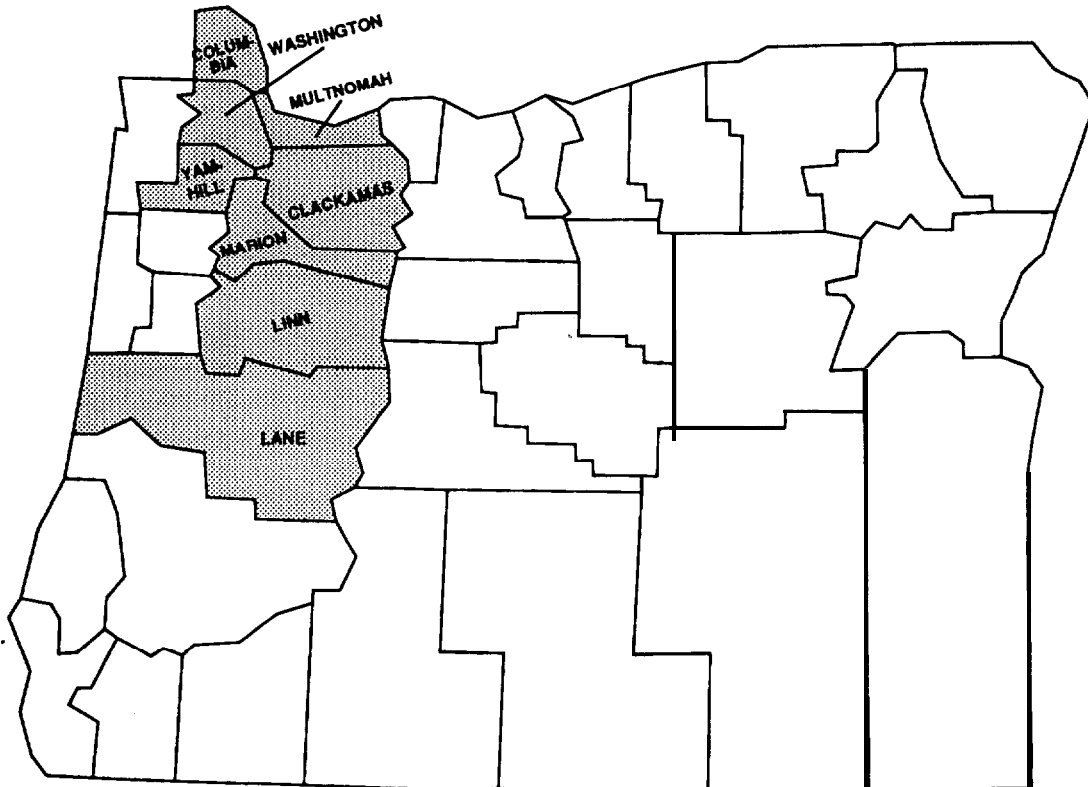
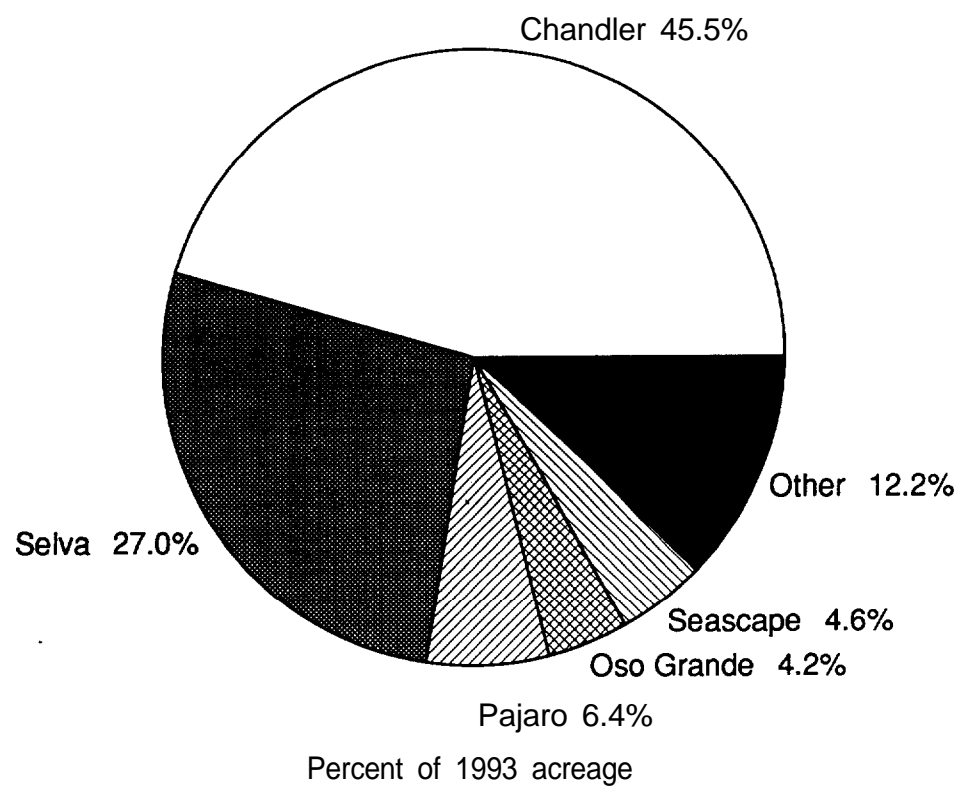
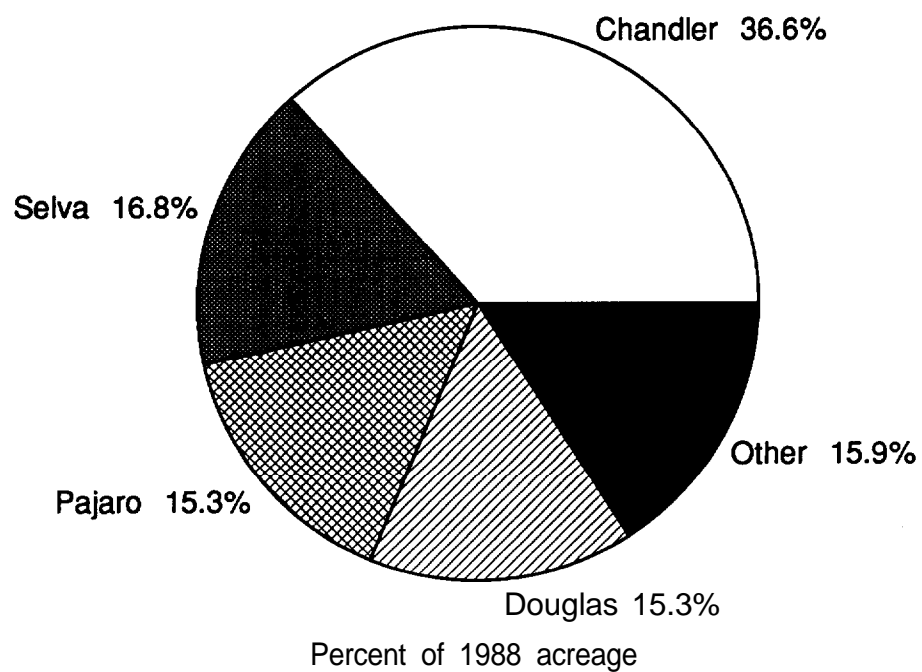


Figure 7

## California strawberry varieties



## **Florida Strawberry Varieties**

Two of the most popular varieties grown in Florida, Oso Grande and Selva, were developed at the University of California. A third variety, Sweet Charlie, was recently released by the University of Florida and is gaining ground.

Florida's strawberry season begins in November when Selva, the earliest variety, is usually ready to be picked. Harvest of Oso Grande begins in late December and peaks in March. Selva accounted for 29 percent of Florida's 1993/94 strawberry area, down from 47 percent in 1992/93. Oso Grande was 55 percent of 1993/94 acreage in Florida, up from 45 percent the year before.

Sweet Charlie is an early-fruited strawberry variety developed for Florida growing conditions. An important quality is its resistance to anthracnose, a fungus disease that thrives in the hot, humid southern climate. Sweet Charlie accounted for 16 percent of Florida acreage in 1993/94, its second year of commercial use, up from 4 percent. Sweet Charlie fills a seasonal gap for Florida growers by ripening after Selva and before Oso Grande.

## **Oregon Strawberry Varieties**

The most popular strawberry variety in Oregon is Totem, which was nearly 80 percent of 1993 acreage. Totem was developed in Canada more than 20 years ago and is especially suited to the northwest climate and processing use. The berries are richly colored throughout, are smaller and more flavorful than some varieties developed for the fresh market, and have a texture better suited to processing. Other strawberry varieties grown in Oregon include Benton (7 percent of 1993 acreage), Sumas, Shuksan, Hood, Ranier, and Redcrest.

## **Size and Structure**

Data from the 1987 Census of Agriculture indicated that strawberry growers were quite specialized, growing mainly vegetables and melons as other crops, rented a large share of their cropland, and considered farming their major occupation. Large operations (with crop sales of \$100,000 or more) were dominant in Florida. Small operations were more common in Oregon and California, with about 25 percent of the strawberry growers in both States reporting crop sales of less than \$10,000. The proportion of operations with sales of at least \$500,000 was highest (20 percent of all strawberry-producing operations) in California in 1987.

## **California Strawberry Producers**

According to the 1987 Census, California strawberry-producing operations were mostly in either the largest or the smallest sales category. Twenty-four percent were in the smallest category (crop sales of \$10,000 or less) and 20 percent in the largest category (sales of \$500,000 or more). The dichotomy was still evident after combining some of the sales classes. Thirty-eight percent had sales of more than \$100,000, 36 percent had sales of less than \$25,000, and 26 percent had sales of \$25,000-\$100,000 (midsized).

The largest strawberry-producing farms in California (sales of at least \$500,000) had an average 244 acres of cropland, and the smallest (sales of \$10,000 or less) averaged 4 acres per farm. Strawberry acreage ranged from an average of 78 acres for the largest farms to 2 acres for the smallest. Much of the land in farms was rented from others: 70 percent for all sizes, 75 percent for the largest, and 41 percent for the smallest.

Most California strawberry growers were full-time farmers: 88 percent of operators considered farming their principal occupation, and only 27 percent reported working 100 days or more off the farm in the 1987 Census of Agriculture.

Only 22 percent of California strawberry growers also produced vegetables and melons, and 14 percent grew fruit and nuts. More large operations (about 30 percent) also grew vegetables and melons, while more small strawberry operations (20 percent) had fruit and nuts. Strawberries accounted for less than one-fourth of the land in farms reported by California strawberry producers, but provided nearly half of their commodity sales in 1987. Vegetables and melons accounted for more acreage, but less revenue.

## **Florida Strawberry Producers**

Unlike in California, strawberries are not grown year round in Florida, so 55 percent of Florida's strawberry growers also produced vegetables and melons and 14 percent grew fruit and nuts. Strawberries accounted for just 14 percent of the land in farms reported by strawberry producers, while vegetables and melons accounted for 36 percent of land and over half of all commodity sales in 1987.

The largest strawberry-producing operations (with crop sales of \$500,000 or more) in Florida averaged 394 acres of farmland, and the smallest (sales of \$10,000 or less) averaged 3 acres per farm. Strawberry acreage ranged from an average of 50 acres for the largest to 2 acres for the smallest. Fifty-five percent of the land in farms was rented. About 80 percent of the largest growers rented land and 25 percent of the smallest.

Most Florida strawberry growers were full-time farmers: 75 percent of operators considered farming their principal occupation, and just one-third reported working 100 days or more off the farm in 1987. According to the 1987 Census, 51 percent of Florida strawberry-producing operations had sales of at least \$100,000, 20 percent had sales less than \$25,000, and 29 percent were mid-sized (from \$25,000 to \$100,000). Florida had fewer operations in the largest and smallest sales categories than did California; 12 percent had crop sales of \$10,000 or less and 11 percent had sales of \$500,000 or more.

## **Oregon Strawberry Producers**

Oregon growers were less specialized than California growers and were more likely to produce other types of berries than were Florida growers. According to the 1987 Census, nearly 50 percent of Oregon's strawberry growers also produced vegetables and melons and 29 percent grew fruit and nuts. Strawberries accounted for just 10 percent of harvested cropland reported by strawberry producers; other berries accounted for 6 percent of cropland, while vegetables and melons accounted for 30 percent. Fruit, nuts, and berries provided more than half of all commodity sales from Oregon strawberry growers in 1987.

The largest strawberry-producing farms in Oregon (with crop sales of \$500,000 or more) averaged 788 acres of harvested cropland, and the smallest (sales of \$10,000 or less) averaged 13 acres. Strawberry acreage ranged from an average 86 acres for the largest farms to 2 acres for the smallest. Fifty-five percent of the land in farms was rented, with 60 percent of strawberry growers reporting some rented land.

Most Oregon strawberry growers were full-time farmers: 75 percent of operators considered farming their principal occupation, but nearly 40 percent reported working 100 days or more off the farm in 1987. According to the 1987 Census, 37 percent of Oregon strawberry-producing operations had sales of at least \$100,000, 36 percent had sales less than \$25,000, and 28 percent were mid-sized (from \$25,000 to \$100,000). Oregon had fewer farms in the largest sales categories--8 percent with sales of \$500,000 or more--than did California or Florida, and had more small farms--26 percent with sales of \$10,000 or less--than did Florida.

## **Industry Update**

Complete information about the strawberry-growing operations in California, Florida, and Oregon will not be available from the 1992 Census of Agriculture for several months. However, knowledgeable individuals in each State offered some estimates that showed that the number of operations had likely declined since 1987 but that the size distributions were less likely to have changed.

The number of strawberry-producing operations in California has dropped from 831 reported in the 1987 Census of Agriculture to 600-700 in 1994. Florida reported 195 strawberry-producing operations in 1987. Although about 10 large operations provide 80 percent of the State's strawberry crop, there are still many small operations. The nearly 500 strawberry-producing operations in Oregon at the time of 1987 Census of Agriculture has likely dropped to 200-300.

## Utilization and Price Patterns

### Fresh or Processed: Uses and Prices

Fresh use accounted for nearly 70 percent of the 1993 U.S. strawberry crop with the rest processed (fig. 8). Most processed strawberries are frozen whole (individually quick frozen, IQF) or sliced, with less than 10 percent of recent U.S. strawberry crops used for juice or puree. Frozen berries are packaged for retail sales and sold in bulk to makers of jam and jelly, syrup, juice drinks, ice cream, yogurt, as well as bakery and confectionery products. In 1993, there were 19 strawberry processors in California and about a dozen in Oregon.

Standards for freezer berries are less stringent than for the fresh market, and costs of packing and selling are lower. However, grower prices for fresh-market strawberries are typically twice as high as processing prices. There are some price differences among States. Since 1987, California fresh-market strawberry prices have been appreciably lower than other States, averaging 53 cents a pound. Florida and Oregon prices averaged 66 cents and 63 cents a pound (fig. 9, table 7). Average California prices were pushed down by the high volume and nearly steady supply from early spring until fall.

California's processing prices were lower and less volatile than Oregon's (fig. 10). Freezer berry prices averaged 23-26 cents a pound in California since 1987, while Oregon's ranged from 29 to 50 cents a pound. Oregon's strawberries are premium processing berries, which bring a higher processing price than those grown for the fresh market in California and sold to processors. Weather-related production changes likely underlie most of Oregon's annual price fluctuations, but frozen strawberry stock levels and the availability of California berries also affect processing prices.

Figure 8

### U.S. strawberry utilization

Million lbs.

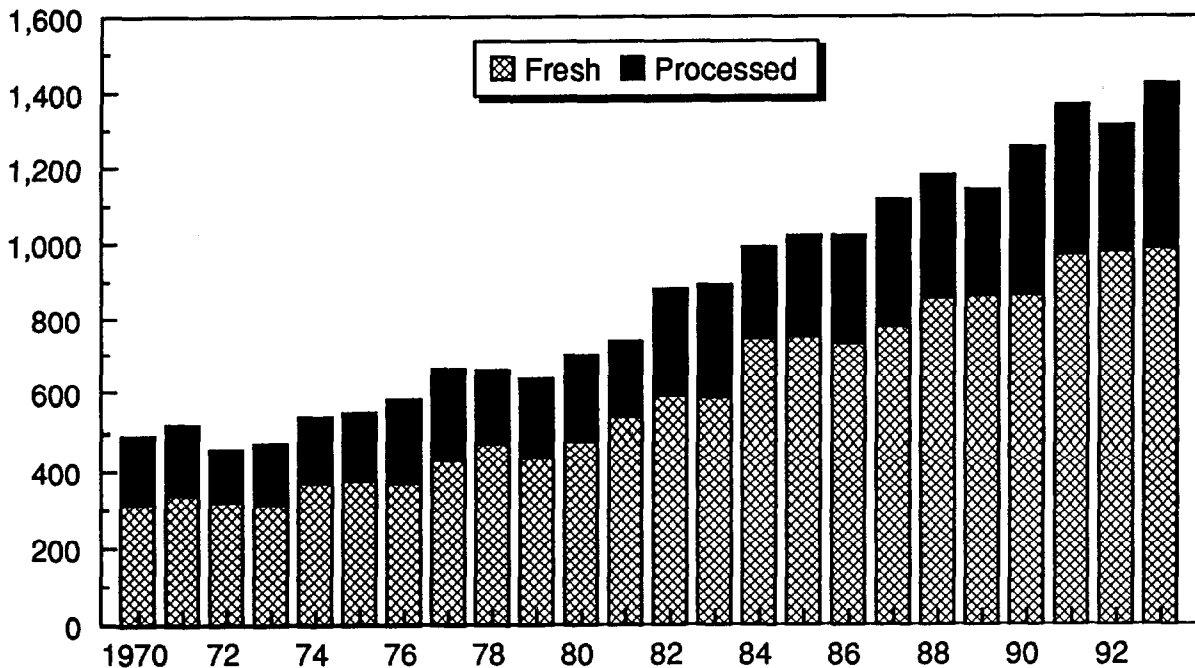




Figure 9

## U.S. fresh strawberry prices

Cents/lb.

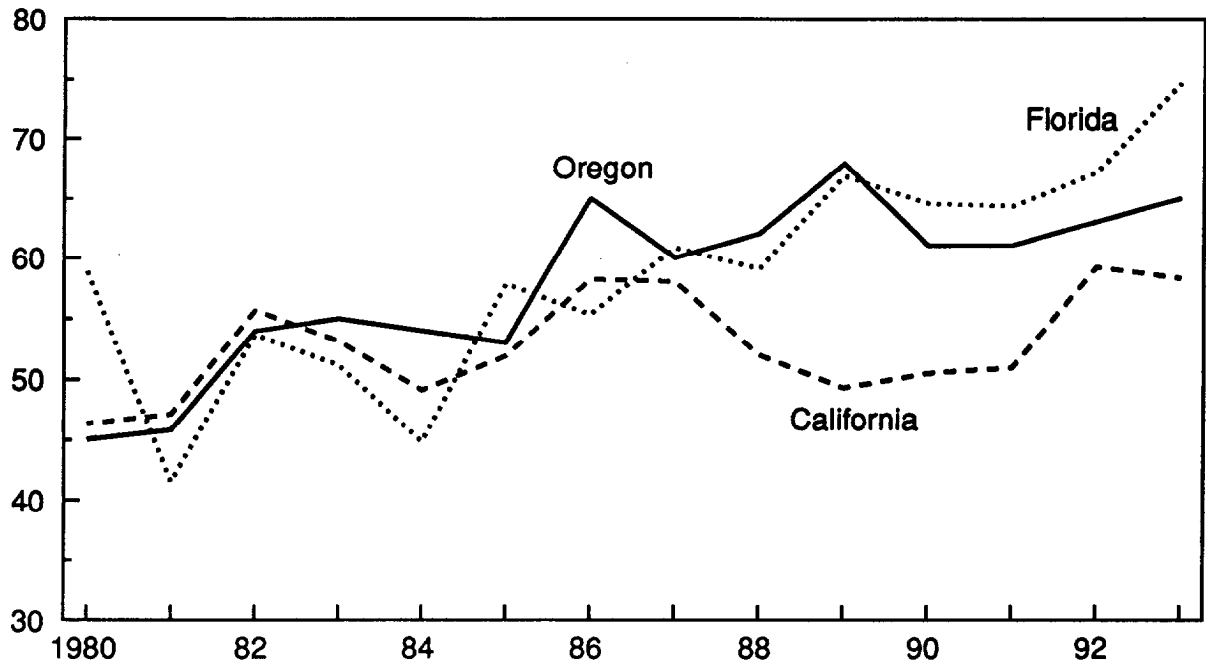
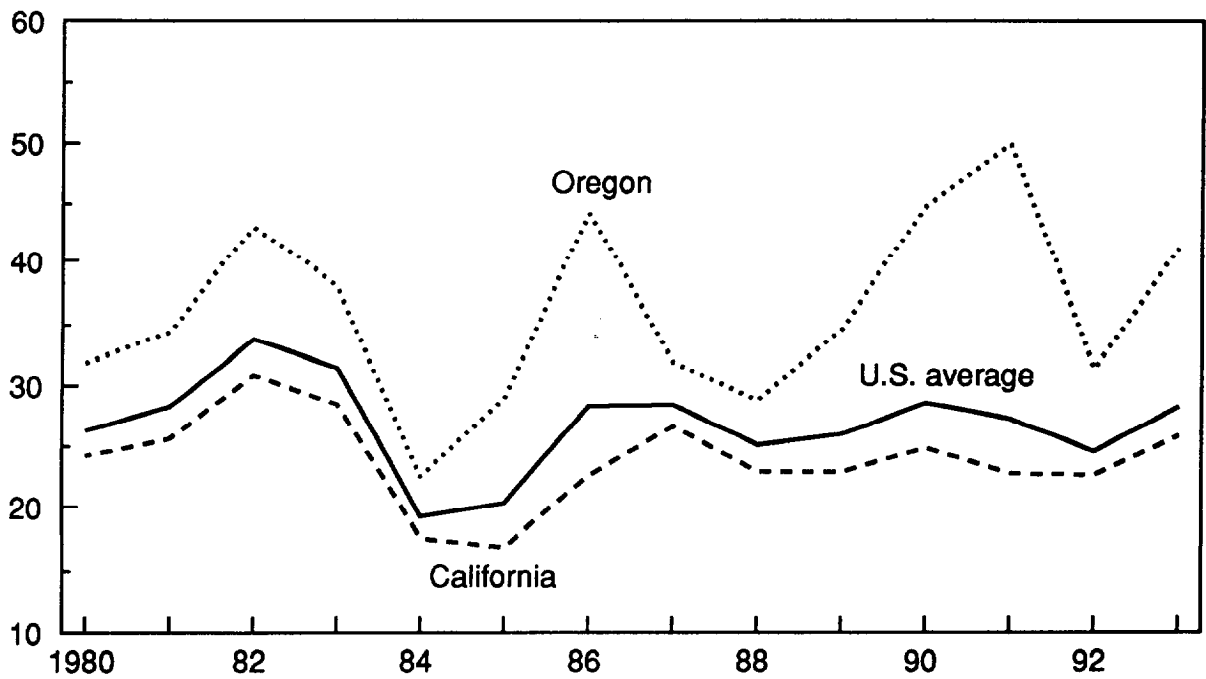


Figure 10

## U.S. processed strawberry prices

Cents/lb.



In the last 3 years, about 70 percent of California's strawberries and virtually all of Florida's strawberries were fresh marketed. Only about 10 percent of Oregon strawberries were fresh marketed. The other States provided mostly fresh-market strawberries to local markets. All strawberry-growing States have direct sales of fresh berries through farmers' markets, roadside stands, and pick-your-own operations.

Nearly three times more strawberries are packaged and sold fresh than 20 years ago. In the early 1970's, about 325 million pounds of U.S.-grown strawberries were fresh marketed each year compared with about 950 million pounds annually in 1990-93. As total strawberry production rose, processed use climbed from about 165 million pounds to 390 million pounds in the 1990's. Fresh use has increased more than processing as the cultivation of varieties that travel better and improved handling techniques have brought more high-quality berries to retail markets. Processing is a secondary use for California strawberries and increases as peak harvest brings fresh prices down.

Increased production in Florida, where most strawberries are fresh marketed, raised the national proportion of fresh use. In 1970-72, just 65 percent of U.S. strawberry crops were fresh marketed compared with 72 percent in 1991-93. Proportions of fresh and processed use within the States have not changed markedly. More California strawberries have gone to processors, nearly 30 percent of recent crops compared with 23 percent in 1970-72. Oregon processing declined from 96 percent of 1970-72 strawberry crops to 90 percent in 1990-92.

### **Fresh-Market Strawberry Shipment Patterns**

Some fresh strawberries are shipped in the United States every month, but April and May are the peak months (fig. 11). According to USDA's Agricultural Marketing Service, California was the source of 89 percent of U.S. fresh strawberry shipments in 1991-93. Each month since January 1989, at least 1 million pounds of strawberries have been shipped from California (table 8).

California strawberry shipments have increased in all months, and more than doubled in July and August, since 1980. The development of varieties with longer production cycles and more acreage in the northern areas have extended California marketings through the summer. However, a strong seasonal shipment pattern resulting from production peaks is still evident. In 1991-93, about 90 percent of California's fresh strawberries were shipped between March and September, with 42 percent in April and May.

Strawberries are a winter crop in Florida. November through May is the usual Florida strawberry-marketing season, with peak shipments in March. In 1991-93, 42 percent of Florida's shipments were in March, 20 percent in February, and 16 percent in January. Only about 2 percent of Florida's strawberries were shipped in December 10 years ago compared with 8 percent recently. New varieties and modifications of cultural practices made possible more shipments in November and December, when prices are higher.

Shipments of strawberries from Mexico into the United States amounted to 3 percent of total U.S. shipments in 1991-93. Like Florida, Mexico provides fresh-market strawberries in the winter, although shipments from Mexico continue into June. Over 40 percent of Mexico's 1991-93 strawberry shipments to the United States were in March and April. Most of Mexico's strawberry acreage is in the states of Michoacan and Guanajuato in central Mexico, where harvest lasts from November through June. Strawberries in the northern state of Baja California are ready later and are usually picked from January through June. Mexico's strawberry harvest usually peaks in February or March.

### **Fresh-Market Price Patterns**

Grower prices for fresh strawberries exhibit a strong seasonal pattern and are low when shipment volumes are high. During April, May, and June, when more than half of annual strawberry shipments occur, grower prices plummet and usually stay 30-40 percent below the season average price (fig. 12). Grower prices are above average from October through February and highest in November and January, when less than 5 percent of shipments occur (table 9). Retail prices for fresh strawberries follow the same seasonal pattern as grower prices, but with less overall fluctuation (fig. 12). Retail strawberry prices are 5 to 16 percent below the annual average

Figure 11

## Monthly average U.S. fresh strawberry shipments

Million lbs.

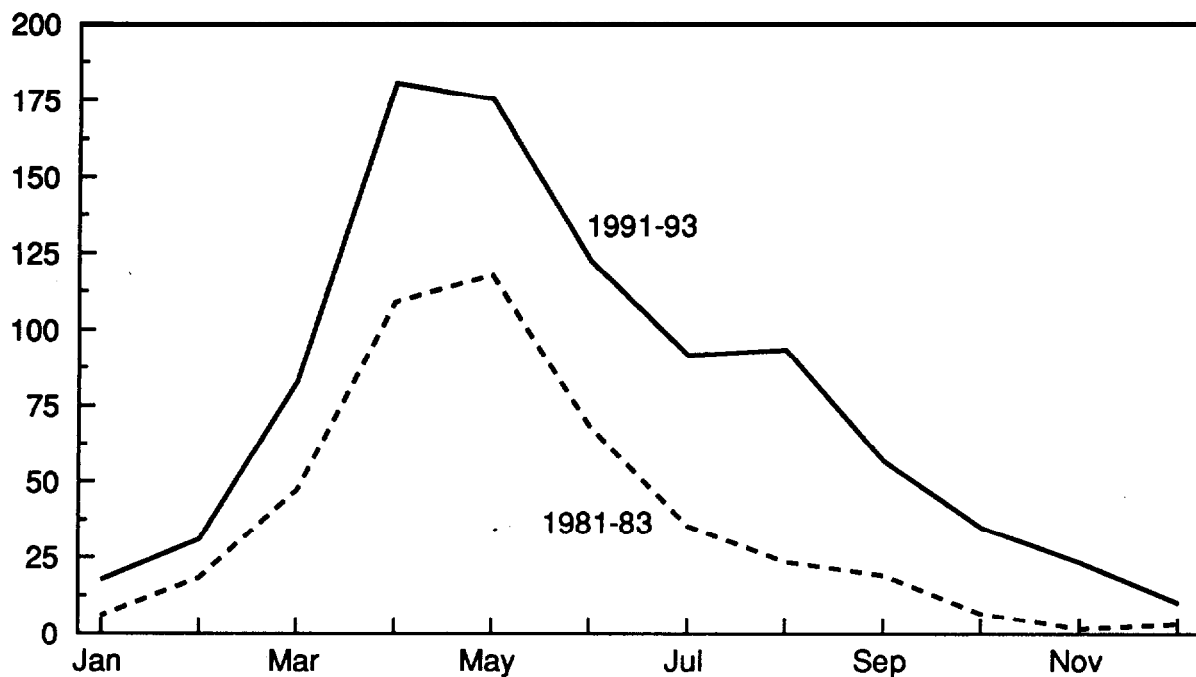
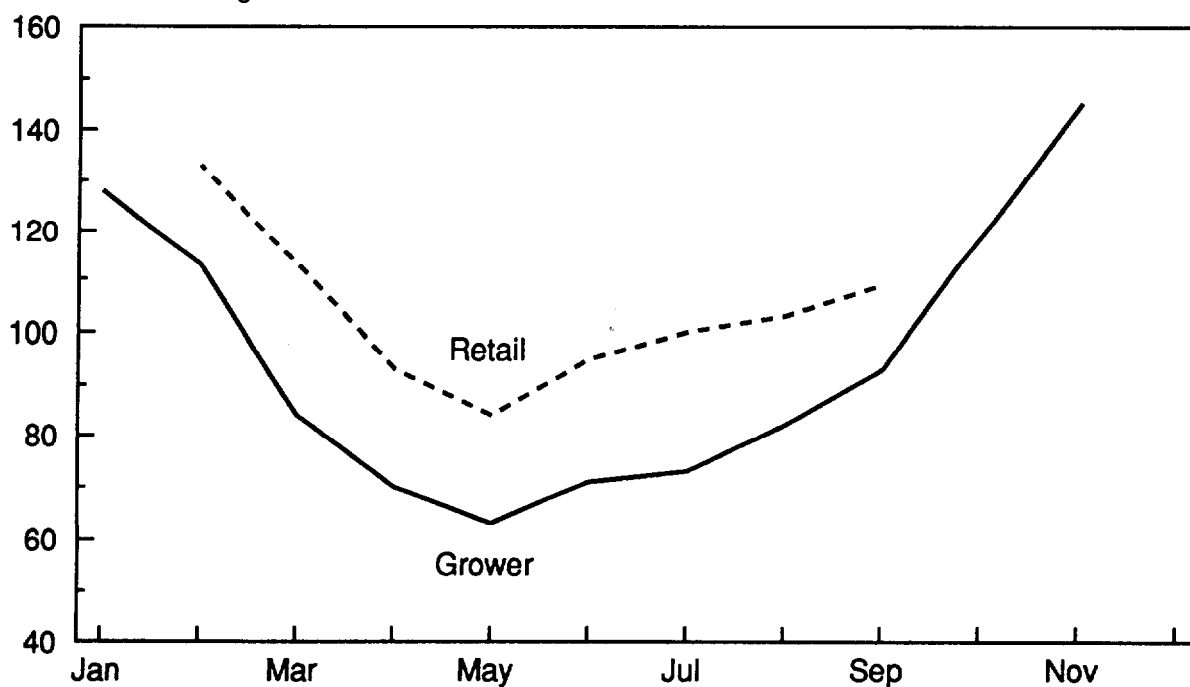


Figure 12

## Monthly fresh strawberry price patterns, 1980-93

Percent of average



from April through June. When supplies are tighter, prices are generally higher. Retail strawberry prices are the highest in February, 33 percent above average, and 10-15 percent above average in March and September (tables 10, 11, and 12).

### Frozen Strawberry Shipments and Stocks

Deliveries of California strawberries to processors (freezers) typically begin in April, with the most deliveries in May and June after peak harvest and when fresh-market prices are seasonally low. Deliveries usually drop off in July, when harvest of most southern California strawberries is finished, but continue into November. Most Oregon strawberries are picked and delivered to processors in June.

Shipments of frozen strawberries are more evenly distributed throughout the year than of the more perishable fresh berries. During the 1990-93 seasons, the movement of frozen strawberries reported by California processors averaged 32 percent of annual shipments in April-June, 26 percent in July-September, 22 percent in October-December, and 20 percent in January-March (table 13). USDA reports the highest frozen strawberry stocks from July through September and the lowest in February and March (fig. 13). Stocks build up from April through July and decline the rest of the year (table 14).

### Strawberry Prices and Inflation

Prices that growers receive for fresh-market strawberries have more than doubled since 1970 but have not kept pace with inflation. A price trend line, based on 1970-93 average annual field prices, rose from 27 cents a pound in 1970 to 64 cents in 1993, a 137-percent increase. Grower prices for processed strawberries rose 58 percent, from 19 to 30 cents a pound (fig. 14).

Figure 13

### Frozen strawberry stocks

Million lbs.

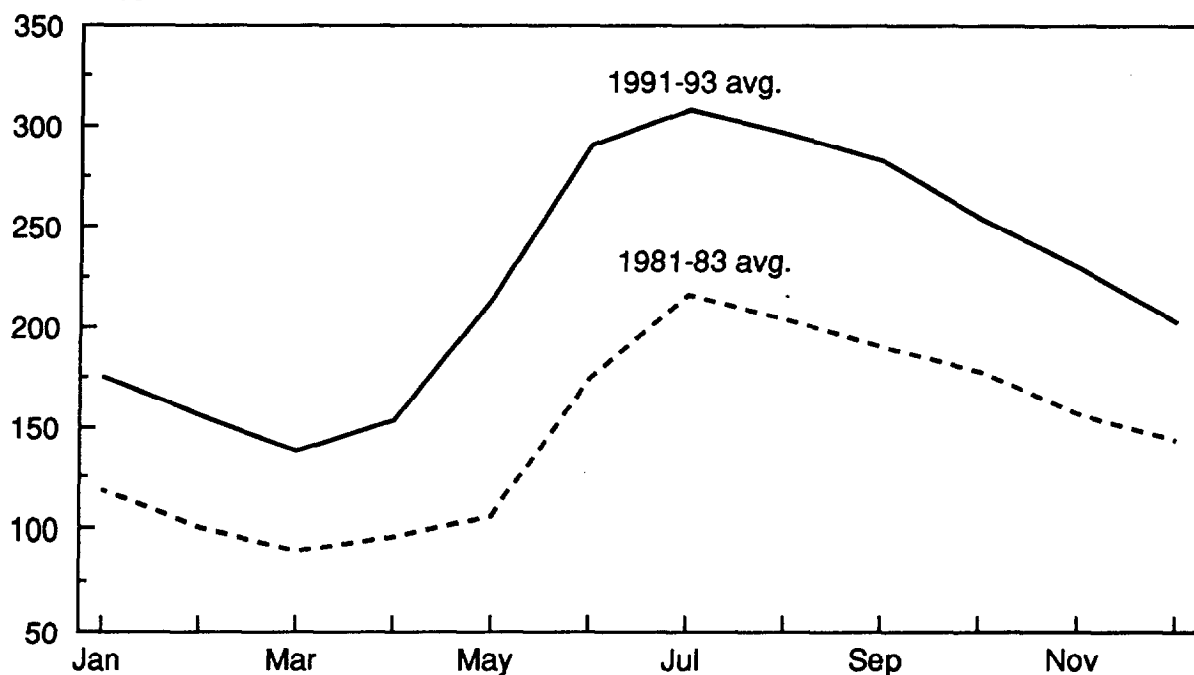


Figure 14

## Grower prices for strawberries

Cents/lb.

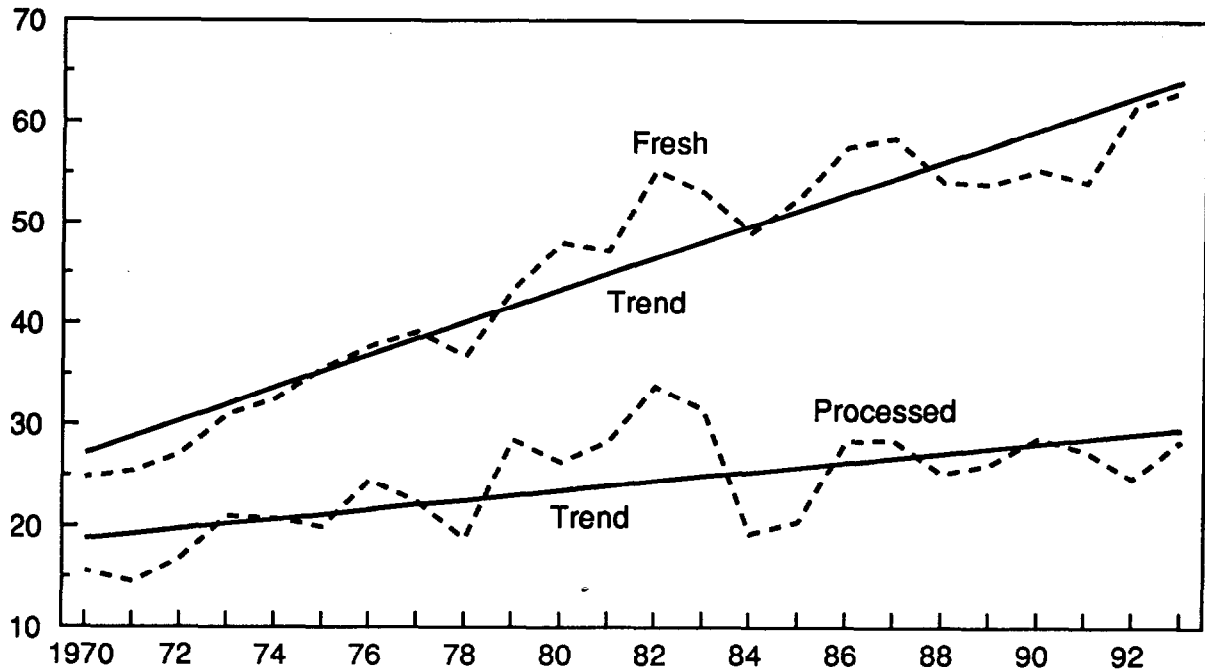
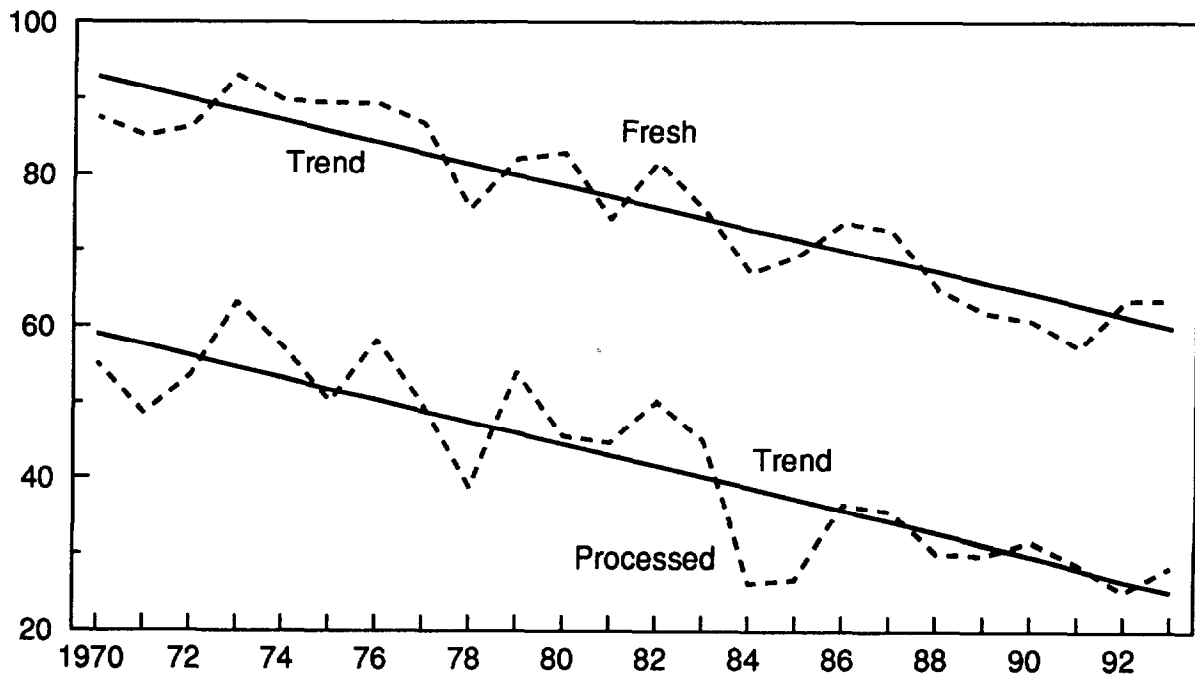


Figure 15

## Grower prices for strawberries, constant dollar

Cents/lb.



However, annual strawberry price increases were less, on average, than the rise in the general price level, as measured by the gross domestic product (GDP) inflation index. Grower prices for fresh strawberries increased an average 4 percent a year since 1970, while processed strawberry prices rose even less, not quite 2 percent a year. After adjusting for inflation, real grower prices for fresh strawberries were 36 percent lower in 1993 than in 1970 and processing prices were down 57 percent (fig. 15). If prices had kept up with inflation, grower prices for fresh strawberries would have been 87 cents a pound in 1993 and 47 cents a pound for processing.

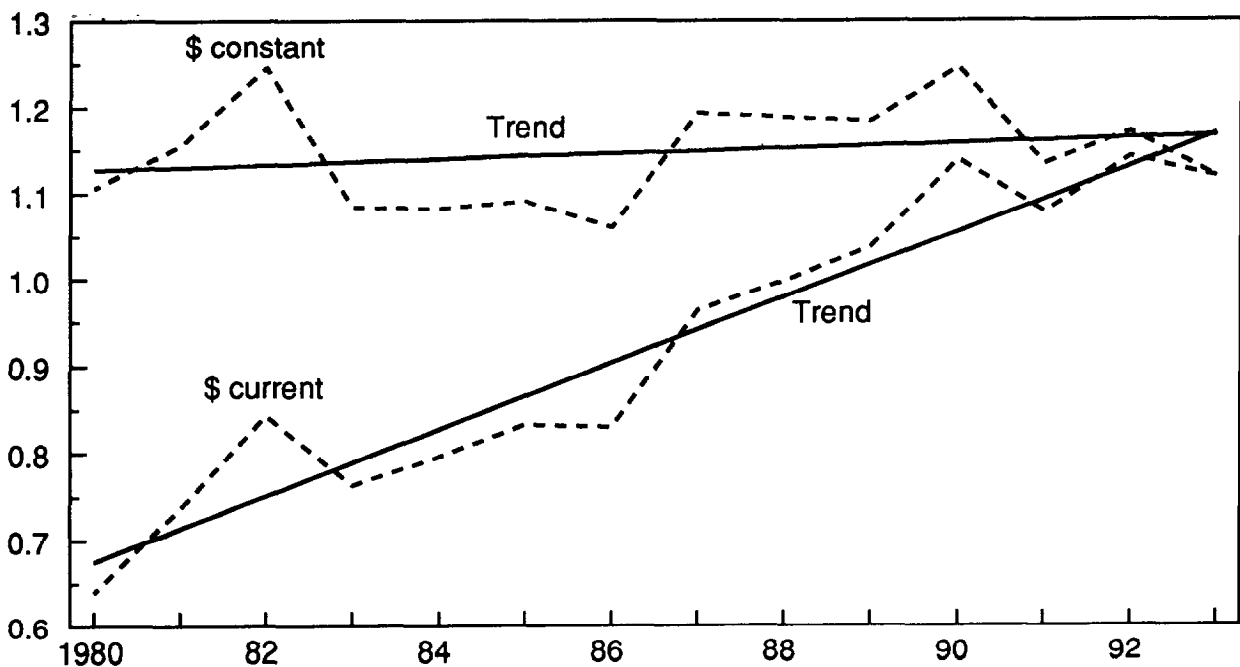
Technological and biological advances raised productivity in the strawberry industry, and real prices came down. However, productivity gains more than offset the drop in prices and the value of U.S. strawberry production rose from an inflation-adjusted \$376 million in 1970 to \$747 million in 1993.

Retail prices for fresh strawberries climbed 75 percent from 1980 through 1993, or about 5 percent annually (fig. 16). However, the trend of inflation-adjusted strawberry prices was nearly flat at the retail level, rising less than 4 percent in 14 years. Retail prices reflect costs of packaging, transporting, and marketing, which rose faster than farmgate prices.

Figure 16

### Retail prices for fresh-market strawberries

\$/lb.



## U.S. Strawberry Supply

### Consumption Rose with Production

Americans are eating more strawberries per person than in the early 1970's as a result of increased domestic production (fig. 17). The United States is the leading producer and consumer of strawberries. U.S. imports of fresh strawberries declined from 51 million pounds to 31 million pounds between 1970 and 1993 (fig. 18). During the same period, U.S. imports of frozen strawberries dropped by nearly half, from 110 million to 57 million pounds (fig. 19).

While production of fresh-market strawberries in the United States has tripled since the early 1970's, imports declined from 12 percent of average U.S. supplies in 1970-72 to 3 percent in 1991-93. At the same time, exports became more significant, climbing from 3 percent to 11 percent of supplies. U.S. consumption of fresh strawberries doubled, from an average 1.74 pounds per person in 1970-72 to 3.56 pounds per person in 1991-93 (table 15).

Production of frozen strawberries in the United States increased at a slower pace than fresh, climbing about 85 percent since the early 1970's. As domestic output grew, frozen strawberry imports dropped, from 34 percent of 1970-72 supplies to 15 percent in 1991-93, and exports grew, from less than 1 percent to 10 percent of supplies. With more production being exported, U.S. consumption of frozen strawberries increased just 5 percent, from an average of 1.36 pounds per person in 1970-72 to 1.43 pounds in 1991-93 (table 16).

### U.S. Strawberry Trade with Canada, Japan, and Mexico

The United States provides about 25 percent of the world's strawberries, and trade volume is small compared with the U.S. strawberry supply. The main sources and destinations of strawberries for the United States are Mexico, Canada, and Japan. Mexico has supplied nearly all of U.S. strawberry imports in the last 5 years,

Figure 17

### U.S. strawberry consumption

Pounds per person

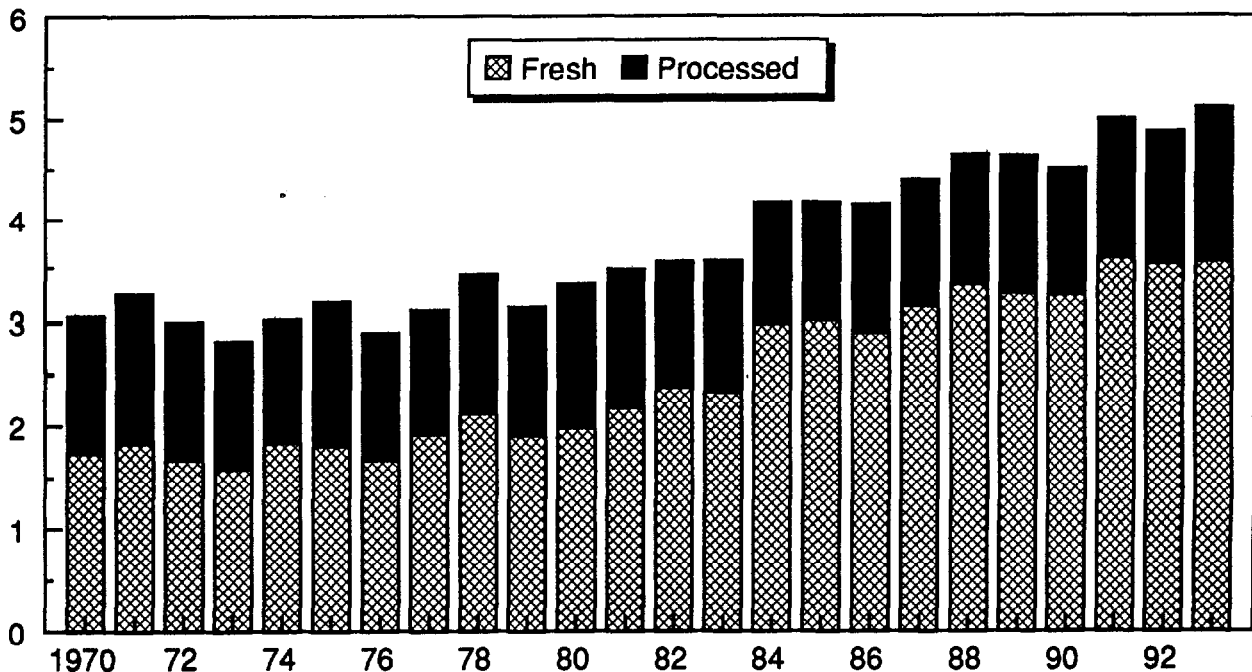


Figure 18

## U.S. fresh strawberry supply and utilization

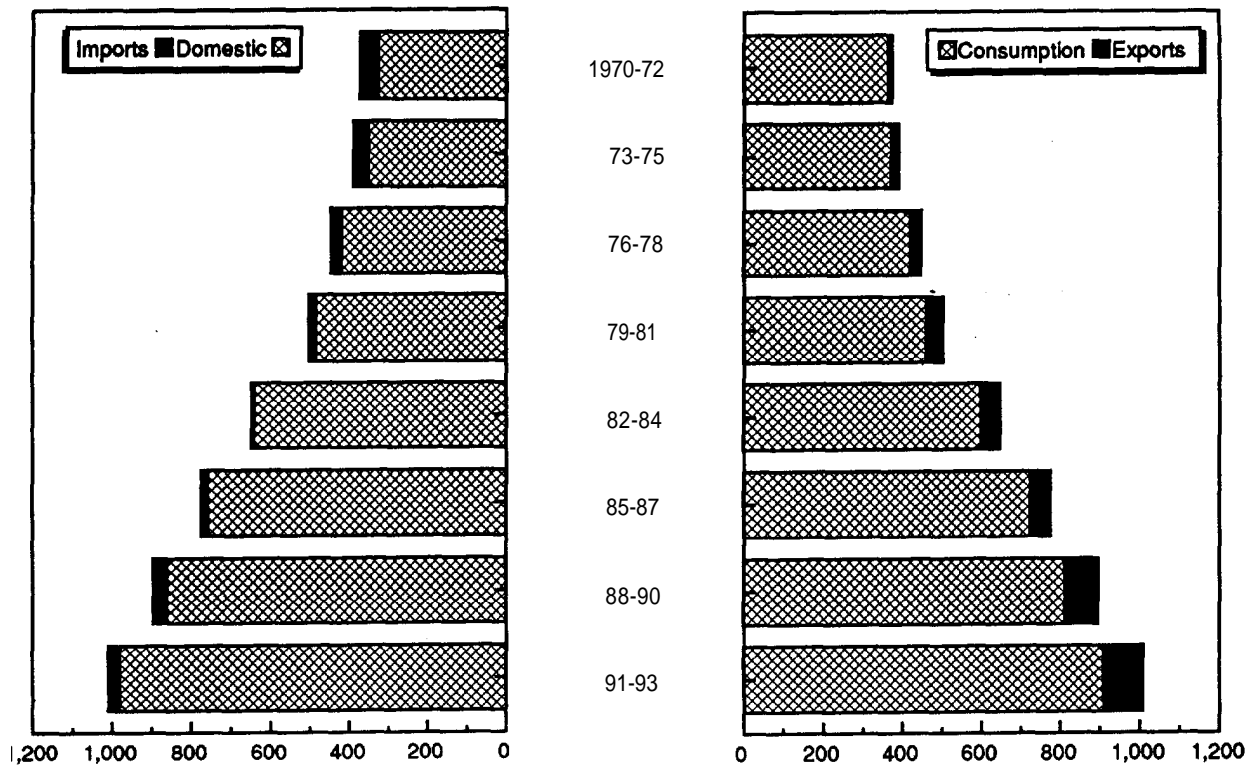
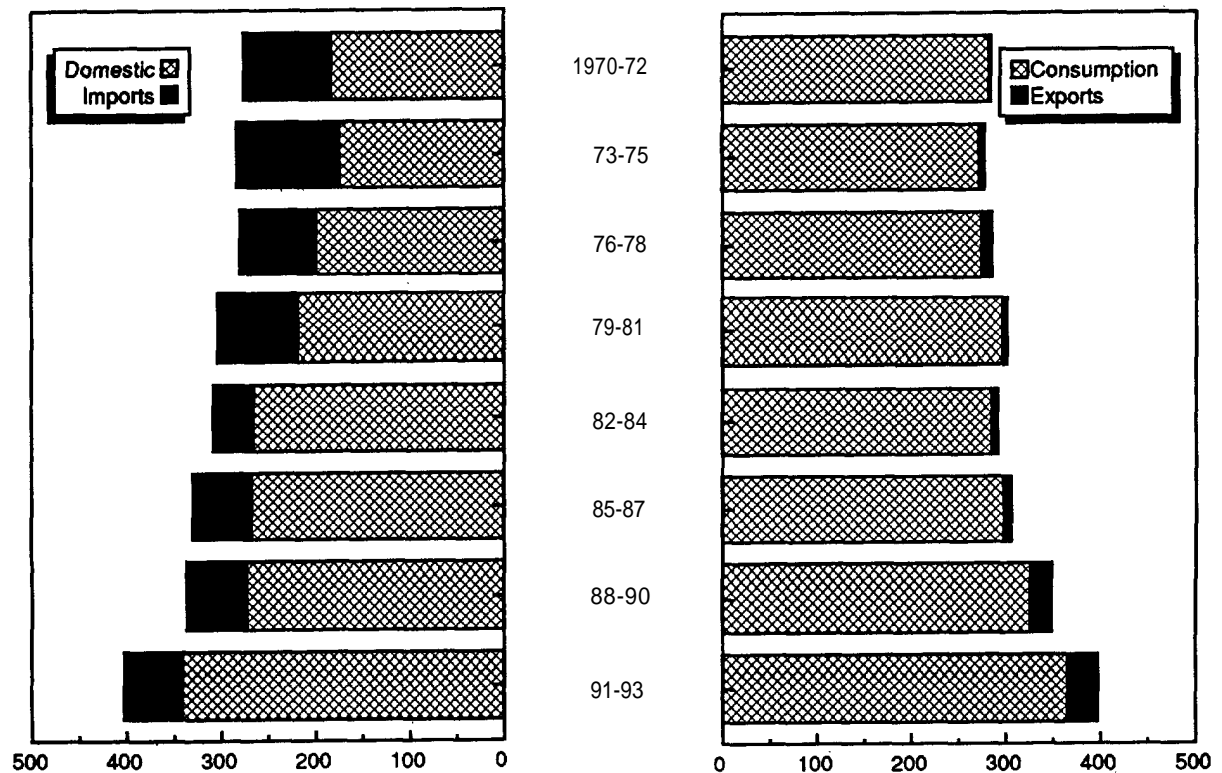


Figure 19

## U.S. frozen strawberry supply and utilization





and the United States is Mexico's major strawberry export market (fig. 20). Canada and Japan are the main destinations for U.S. exports of fresh and frozen strawberries. And recently, fresh strawberries from California have found a late-summer market in Mexico.

In 1989-93, Mexico provided about 90 percent of U.S. imports of fresh and frozen strawberries (figs. 20 and 21). U.S. imports of fresh strawberries were highest in March and April, during peak harvest in Mexico. In December and January, Colombia, Guatemala, Costa Rica, and New Zealand provided some fresh U.S. strawberry imports. Frozen strawberry imports are usually highest from March through May, when U.S. stocks are relatively low. Sources of frozen strawberries, in addition to Mexico, include Poland, Ecuador, Chile, Costa Rica, and Canada (tables 17 and 18).

Japan was the destination for 67 percent of U.S. frozen strawberry exports in 1989-93, and Canada received 20 percent. Japan does not produce many frozen strawberries, and imports supply the food manufacturing sector. Japan's imports of frozen U.S. strawberries rose about one-third between 1991 and 1993, with the United States providing 55 percent of 1993 imports. Korea, China, and Thailand also exported frozen strawberries to Japan. Canada's production of frozen strawberries has declined, and imports have risen. Mexico is now Canada's major source of frozen strawberry imports (table 19).

Canada was the major export market for fresh U.S. strawberries, receiving about 80 percent of 1989-93 exports (fig. 22). Japan, the second most important destination, accounted for less than 10 percent (table 20). Although, the United States supplies nearly all of Japan's imported fresh strawberries, imports are usually less than 5 percent of supplies since Japan is a major producer (tables 21-23). The United States ships small quantities of fresh strawberries to Mexico from July until November, when few Mexican berries are available. Fresh U.S. strawberry exports to Mexico were up about 60 percent in 1993 from the year earlier. Although still a relatively small market for U.S. strawberries, 8 percent of 1993 exports, rising income and falling trade barriers in Mexico have increased the potential for growth.

Figure 20

## U.S. fresh strawberry imports, by source, 1989-93 average

Million lbs.

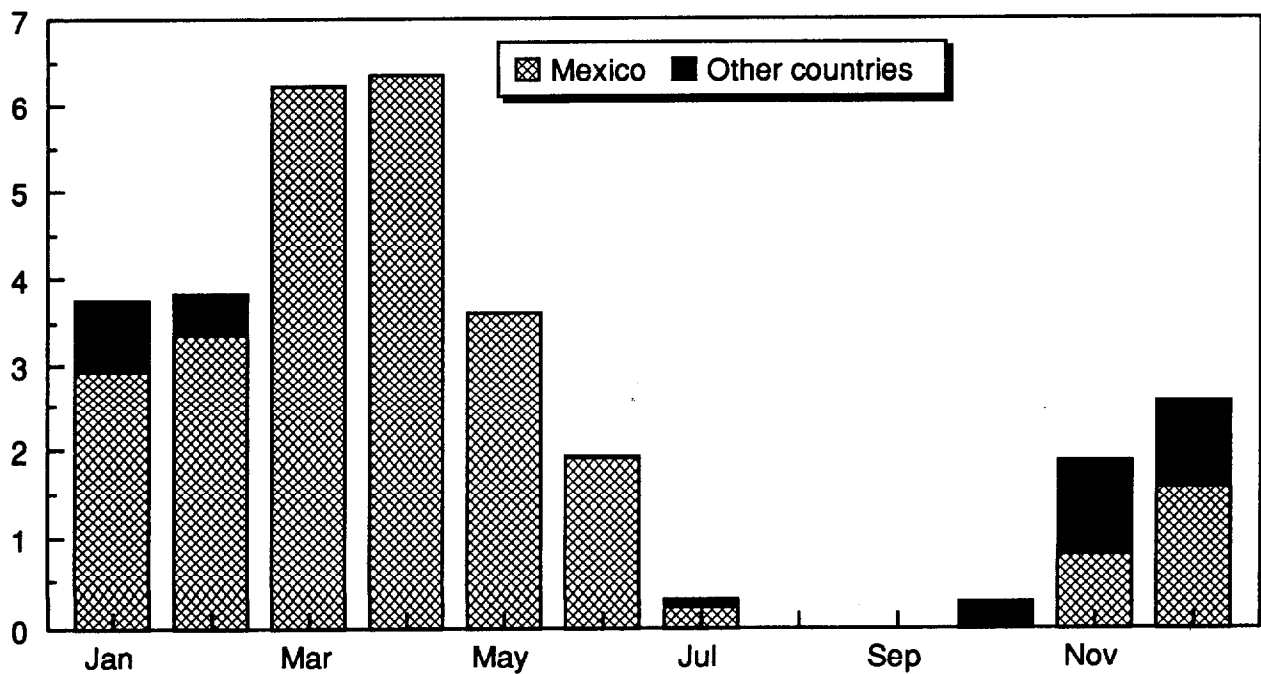


Figure 21

## U.S. frozen strawberry imports, by source, 1989-93 average

Million lbs.

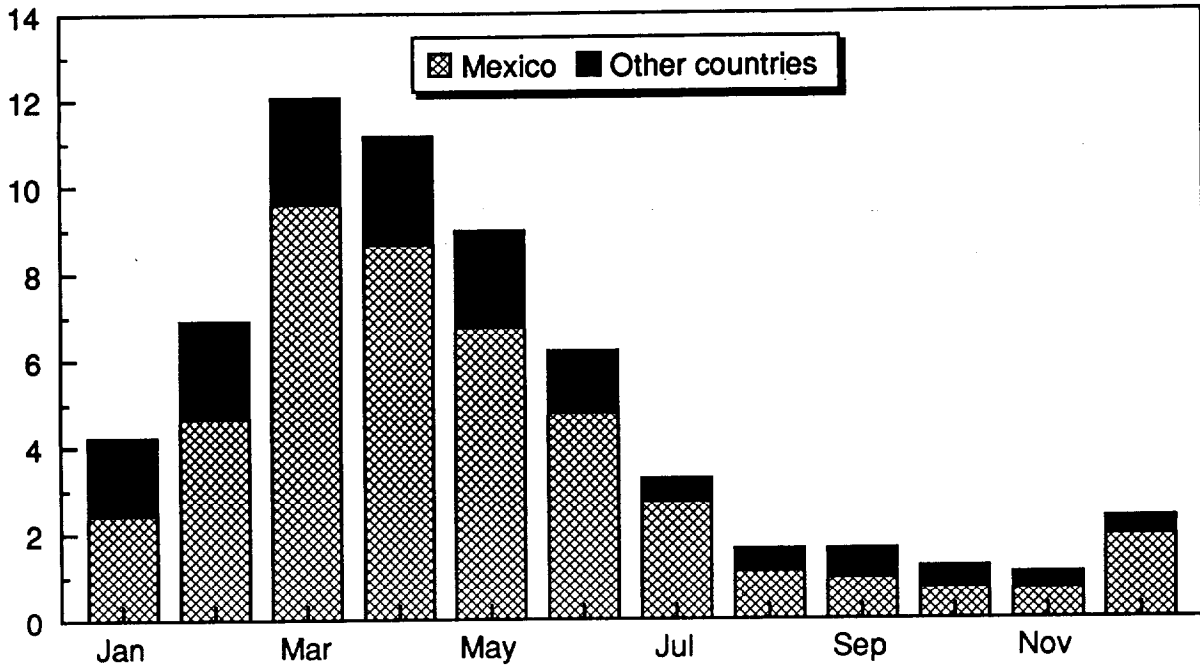


Figure 22

## U.S. fresh strawberry exports, by destination, 1989-93 average

Million lbs.

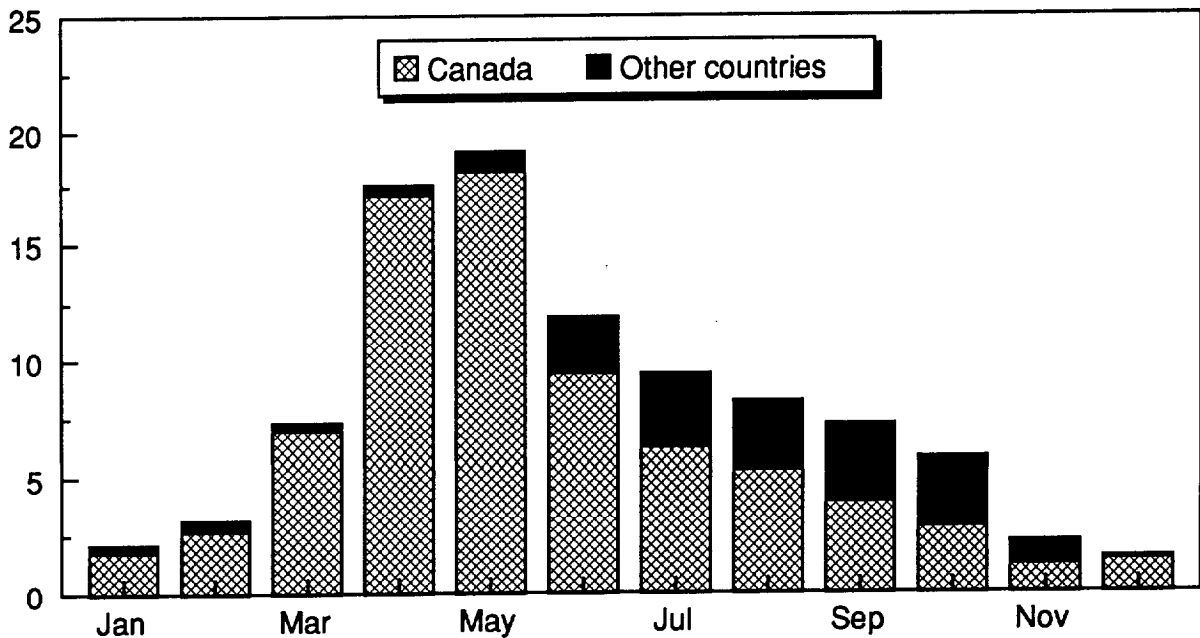


Table 1--U.S. strawberry production, utilization, prices, and values, 1970-93

Year	Utilized production			Grower prices			Value of production		
	Fresh	Processed	Total	Fresh	Processed	Total	Fresh	Processed	Total
	-- Million pounds --			-- Cents/pound --			-- Million dollars --		
1970	316.4	179.6	496.0	24.8	15.6	21.5	78.5	28.0	106.6
1971	340.4	180.3	520.7	25.4	14.5	22.5	86.5	26.1	117.2
1972	321.1	139.1	460.2	27.1	16.8	24.0	87.0	23.4	110.4
1973	316.4	163.2	479.6	31.0	21.0	27.6	98.1	34.3	132.4
1974	370.6	168.2	538.8	32.5	20.7	28.8	120.4	34.8	155.2
1975	377.4	173.2	550.6	35.5	19.9	30.6	134.0	34.5	168.5
1976	369.5	211.2	580.7	37.7	24.5	32.9	139.3	51.7	191.1
1977	429.8	232.1	661.9	39.1	22.4	33.2	168.1	52.0	219.8
1978	477.9	181.3	659.2	36.7	18.8	31.7	175.4	34.1	209.0
1979	436.0	202.3	638.3	43.4	28.5	38.7	189.2	57.7	247.0
1980	482.1	219.6	701.7	47.9	26.3	41.2	230.9	57.8	289.1
1981	537.5	204.1	741.6	47.1	28.3	42.0	253.2	57.8	311.5
1982	589.6	293.4	883.0	55.2	33.8	48.1	325.5	99.2	424.7
1983	585.4	308.1	893.5	53.0	31.5	45.6	310.3	97.1	407.4
1984	748.2	242.7	990.9	49.0	19.3	41.7	366.6	46.8	413.2
1985	754.1	264.7	1,018.8	52.6	20.4	44.3	396.7	54.0	451.3
1986	734.8	284.5	1,019.3	57.6	28.4	49.4	423.2	80.8	503.5
1987	780.4	336.9	1,117.3	58.5	28.5	49.4	456.5	96.0	551.9
1988	855.5	323.6	1,179.1	54.1	25.2	46.2	462.8	81.5	544.7
1989	861.6	280.4	1,142.0	53.9	26.1	47.1	464.4	73.2	537.9
1990	864.2	390.1	1,254.3	55.3	28.7	47.1	477.9	112.0	590.8
1991	971.5	397.4	1,368.9	54.1	27.4	46.3	525.6	108.9	633.8
1992	980.3	335.1	1,315.4	61.5	24.7	52.1	602.9	82.8	685.3
1993	987.6	436.2	1,423.8	63.1	28.4	52.5	623.2	123.9	747.5

Source: National Agricultural Statistics Service, USDA.

Table 2--Real U.S. strawberry prices and values, 1970-93

Year	GDP implicit priceindex 1993=100	Real grower prices			Real value of production		
		Fresh	Processed	Total	Fresh	Processed	Total
		-- Cents/pound --			-- Million dollars --		
1970	28	87.5	55.1	75.9	277	99	376
1971	30	85.1	48.6	75.3	290	88	392
1972	31	86.3	53.5	76.4	277	74	352
1973	33	93.0	63.0	82.8	294	103	397
1974	36	89.7	57.1	79.5	332	96	428
1975	40	89.4	50.1	77.1	337	87	424
1976	42	89.3	58.0	77.9	330	123	453
1977	45	86.7	49.6	73.6	372	115	487
1978	49	75.4	38.6	65.1	360	70	429
1979	53	82.0	53.8	73.1	357	109	467
1980	58	82.8	45.4	71.2	399	100	500
1981	64	74.0	44.4	66.0	398	91	489
1982	68	81.6	50.0	71.1	481	147	628
1983	70	75.3	44.8	64.8	441	138	579
1984	73	66.7	26.3	56.8	499	64	563
1985	76	69.0	26.8	58.1	521	71	592
1986	78	73.6	36.3	63.2	541	103	644
1987	81	72.5	35.3	61.2	566	119	684
1988	84	64.5	30.1	55.1	552	97	650
1989	88	61.6	29.8	53.8	530	84	614
1990	91	60.5	31.4	51.6	523	123	647
1991	95	56.9	28.8	48.7	553	115	667
1992	97	63.1	25.3	53.4	618	85	703
1993	100	63.1	28.4	52.5	623	124	747

**Table 3--Value of utilized production for fresh-market U.S. fruit, 1970-72, 1980-82, and 1990-92**

Commodity	1970	1971	1972	1980	1981	1982	1990	1991	1992
<i>-- Million dollars --</i>									
Noncitrus:									
Apples	230.6	242.8	298.2	597.0	684.1	598.9	1,161.9	1,374.7	1,125.4
Apricots	2.6	2.2	2.4	7.5	6.1	5.6	14.0	16.1	13.8
Avocados	25.7	30.6	31.4	101.3	121.1	109.6	188.6	181.2	110.5
Bananas <sup>1</sup>	0.6	0.7	0.7	1.1	1.5	1.6	4.3	4.7	4.9
Cherries, sweet	22.9	28.1	24.5	62.5	67.1	65.4	92.1	86.6	114.8
Cherries, tart	1.2	1.0	0.8	1.9	1.7	2.0	2.0	1.7	3.4
Dates <sup>2</sup> /	2.7	3.1	2.7	14.2	14.3	17.6	19.7	21.3	22.3
Grapes	70.6	71.1	118.0	318.7	279.0	321.4	457.8	439.4	327.3
Kiwifruit <sup>2</sup> /	N.A.	N.A.	N.A.	10.1	11.0	10.6	14.1	22.0	13.8
Olives <sup>2</sup> /	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.3	0.3
Papayas <sup>1</sup>	2.4	2.7	3.3	9.8	12.2	11.2	14.5	16.0	14.0
Peaches	94.9	115.9	92.9	219.8	220.9	201.2	246.9	260.4	235.1
Pears	28.9	29.0	43.9	57.6	53.7	45.3	168.3	178.0	168.0
Pineapples <sup>1</sup> /	N.A.	N.A.	N.A.	34.3	45.6	55.0	54.3	51.9	55.9
Strawberries	70.5	86.4	86.9	231.1	253.3	325.3	478.1	525.1	603.2
Citrus:									
Oranges	N.A.	N.A.	N.A.	285.2	344.5	455.0	561.0	523.5	543.3
Tangerines	N.A.	N.A.	N.A.	29.0	30.2	36.0	66.5	69.4	98.3
Grapefruit	N.A.	N.A.	N.A.	146.1	176.4	147.8	263.5	314.8	312.9
Lemons	N.A.	N.A.	N.A.	129.9	99.5	105.1	260.1	271.0	246.9
Limes	N.A.	N.A.	N.A.	12.6	12.2	14.5	21.4	26.2	21.0
Tangelos	N.A.	N.A.	N.A.	11.3	13.5	12.5	11.1	13.8	14.5
Templets	N.A.	N.A.	N.A.	13.2	9.4	7.1	2.7	9.9	0.8

N.A. = Not available.

<sup>1</sup>/ Production in Hawaii.

<sup>2</sup>/ Production in California.

Source: National Agricultural Statistics Service and Economic Research Service, USDA.

**Table 4--U.S. strawberry harvested acreage, yield per acre, and production, 13 States, 1970-81**

Item	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
<i>-- Acres --</i>												
Harvested acreage:												
Arkansas	1,500	1,400	1,300	1,300	1,200	1,100	1,100	900	500	400	400	250
California	8,500	8,300	7,800	8,100	8,900	10,000	10,800	11,600	12,900	11,500	11,000	10,990
Florida	1,699	1,600	1,600	1,400	1,300	1,200	1,400	1,500	2,200	2,400	2,500	3,200
Louisiana	1,309	1,100	1,200	1,000	900	900	650	650	800	700	650	650
Michigan	5,800	5,200	4,000	3,400	3,100	3,000	2,900	2,800	2,800	2,800	2,700	2,700
New Jersey	1,300	1,300	1,200	1,100	1,000	900	800	900	1,000	900	900	900
New York	1,799	1,600	1,300	1,500	1,600	1,800	1,900	2,100	2,200	2,500	2,700	2,800
North Carolina	1,800	1,900	2,100	2,100	2,000	2,100	2,100	2,100	2,100	2,100	2,100	2,100
Ohio	1,599	1,600	1,700	1,400	1,400	1,400	1,400	1,600	1,900	1,900	1,900	1,900
Oregon	11,900	10,000	8,200	7,400	6,700	5,800	5,200	5,300	5,000	5,200	5,200	5,500
Pennsylvania	1,300	1,300	1,300	1,200	1,100	1,200	1,300	1,400	1,500	1,500	1,600	1,700
Washington	4,100	4,100	3,800	3,600	3,600	3,400	3,300	3,300	3,300	3,100	2,900	2,800
Wisconsin	1,599	1,500	1,400	1,400	1,300	1,400	1,400	1,300	1,400	1,500	1,500	1,600
Other 1/	7,300	6,680	6,510	5,710	5,160	5,390						
U.S. total	50,400	47,760	43,410	40,610	39,260	39,590	34,450	35,650	37,600	36,500	36,050	37,000
<i>-- 1,000 pounds --</i>												
Yield per acre:												
Arkansas	3.0	2.5	2.5	2.2	2.3	4.1	4.5	4.8	4.0	4.4	6.4	6.4
California	34.0	36.5	36.5	39.5	43.0	38.0	39.0	45.0	39.0	41.0	47.0	49.5
Florida	8.0	11.0	12.5	13.5	13.5	16.5	15.0	14.5	16.0	16.0	19.0	21.0
Louisiana	5.8	7.4	6.0	6.1	6.1	7.3	7.1	6.1	6.6	6.5	6.0	6.0
Michigan	4.4	4.8	5.3	4.4	5.7	6.5	8.0	7.0	7.5	7.0	6.5	6.5
New Jersey	5.2	5.3	3.8	4.2	5.3	4.5	4.5	4.3	5.0	3.8	4.2	4.8
New York	3.9	3.5	2.4	4.0	4.2	4.1	3.3	4.3	4.9	5.5	5.3	4.6
North Carolina	2.0	1.8	0.9	3.2	2.8	2.3	2.1	2.0	1.5	2.5	2.9	2.8
Ohio	3.6	3.7	4.0	3.6	4.6	4.9	5.7	4.9	5.8	5.5	7.0	4.2
Oregon	6.5	8.3	6.7	6.6	6.2	7.2	9.2	6.6	6.8	8.2	8.9	9.3
Pennsylvania	3.6	3.6	3.1	3.2	3.7	4.0	3.8	4.2	3.7	3.8	3.9	4.0
Washington	7.3	6.5	6.4	6.0	6.3	6.8	7.6	6.1	5.3	5.3	6.0	6.0
Wisconsin	2.8	2.9	2.3	2.7	4.9	4.6	3.0	2.4	3.9	3.1	3.8	3.6
U.S. total	9.8	10.9	10.6	11.8	13.7	13.9	16.9	18.6	17.5	17.5	19.5	20.0
<i>-- Million pounds --</i>												
Production:												
Arkansas	4.5	3.5	3.3	2.9	2.8	4.5	5.0	4.3	2.0	1.8	2.6	1.6
California	289.0	303.0	284.7	320.0	382.7	380.0	421.2	522.0	503.1	471.5	517.0	539.6
Florida	14.4	17.6	20.0	18.9	17.6	19.8	21.0	21.8	35.2	38.4	47.5	67.2
Louisiana	7.5	8.1	7.2	6.1	5.5	6.6	6.0	5.2	5.3	4.6	3.9	3.9
Michigan	25.5	25.0	21.2	15.0	17.7	19.5	23.2	19.6	21.0	19.6	17.6	17.6
New Jersey	6.8	6.9	4.6	4.6	5.3	4.1	3.6	3.9	5.0	3.4	3.8	4.3
New York	6.6	5.6	3.1	6.0	6.7	7.4	6.3	9.0	10.8	13.8	14.3	12.9
North Carolina	3.6	3.4	1.9	6.7	5.6	4.8	4.4	4.2	3.2	5.3	6.1	5.9
Ohio	5.4	5.9	6.8	5.0	6.4	6.9	8.0	7.8	11.0	10.5	13.3	8.0
Oregon	71.5	83.0	54.9	48.8	41.5	41.8	47.8	35.0	34.0	42.6	46.3	51.2
Pennsylvania	4.7	4.7	4.0	3.8	4.1	4.8	4.9	5.9	5.6	5.7	6.2	6.8
Washington	29.9	26.7	24.3	21.6	22.7	23.1	25.1	20.1	17.5	16.4	17.4	16.8
Wisconsin	4.2	4.4	3.2	3.8	3.8	6.4	4.2	3.1	5.5	4.7	5.7	5.8
Other 1/	22.4	22.9	21.0	16.4	13.8	20.9						
U.S. total	496.0	520.7	460.2	479.6	536.2	550.6	580.7	661.9	659.2	638.3	701.7	741.6

1/ Ten other States were reported prior to 1976: Illinois, Indiana, Kentucky, Maryland, Massachusetts, Missouri, Oklahoma, Tennessee, Texas, and Virginia.

Source: National Agricultural Statistics Service, USDA.

**Table 5--U.S. Strawberry harvested acreage, yield per acre, and production, 13 States, 1982-93**

Item	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
<i>-- Acres --</i>												
Harvested acreage:												
Arkansas	300	300	300	300	300	220	250	250	230	230	230	230
California	11,600	13,000	14,100	14,600	15,600	17,500	19,200	20,400	21,000	21,100	24,000	25,000
Florida	5,000	5,400	5,100	5,300	4,900	4,900	5,000	5,300	5,300	5,500	4,700	5,100
Louisiana	650	600	600	550	550	600	700	650	750	850	1,000	1,100
Michigan	2,700	2,700	2,700	2,500	2,400	2,400	2,300	2,200	2,200	2,100	2,000	1,900
New Jersey	1,000	1,000	1,000	1,100	900	800	700	600	500	500	500	500
New York	2,800	3,000	3,000	3,300	3,300	2,800	2,500	2,400	2,700	3,400	3,600	3,800
North Carolina	2,100	2,200	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,200	2,300	2,400
Ohio	1,900	1,900	1,600	1,700	1,500	1,400	1,300	1,200	1,100	1,000	1,000	1,100
Oregon	5,800	6,900	6,600	6,800	7,300	7,800	7,800	6,200	5,700	5,600	6,100	6,200
Pennsylvania	1,800	1,800	1,700	1,700	1,800	1,900	1,900	1,800	1,700	1,600	1,500	1,500
Washington	3,000	3,100	3,000	3,000	2,800	2,500	2,400	1,900	1,800	1,400	1,600	1,600
Wisconsin	1,600	1,500	1,500	1,400	1,300	1,200	1,000	1,100	1,100	1,200	1,100	1,100
U.S. total	40,250	43,400	43,300	44,350	44,750	46,120	47,150	46,100	46,180	46,680	49,630	51,530
<i>-- 1,000 pounds --</i>												
Yield per acre:												
Arkansas	6.7	5.0	5.7	5.7	6.0	5.0	4.6	3.5	2.4	3.5	2.4	3.0
California	54.5	48.0	53.5	53.0	50.5	47.0	45.0	42.5	47.0	52.0	43.0	45.5
Florida	19.5	19.0	17.0	20.0	18.5	22.5	25.0	26.0	22.0	24.0	30.0	27.0
Louisiana	6.0	7.0	6.2	5.5	6.2	7.2	7.5	6.2	7.8	6.5	12.0	10.0
Michigan	8.0	6.0	7.0	6.5	6.0	6.0	5.5	5.3	6.5	6.2	6.6	6.0
New Jersey	4.9	5.0	5.0	5.5	4.2	5.3	4.6	3.0	4.2	3.8	5.0	3.5
New York	4.5	4.5	5.1	5.1	5.5	5.7	4.8	5.6	6.3	5.6	3.0	6.0
North Carolina	2.6	4.0	3.6	3.2	3.5	3.8	6.0	4.2	6.0	5.5	5.5	4.5
Ohio	6.6	5.0	4.8	5.4	3.8	5.2	5.6	4.6	6.5	5.3	7.1	5.3
Oregon	10.0	11.5	9.2	7.4	8.7	12.0	13.0	10.5	11.5	11.0	10.0	10.0
Pennsylvania	4.2	4.0	3.0	3.0	3.4	3.8	4.3	4.7	4.3	3.8	3.9	3.6
Washington	6.2	6.2	7.0	7.1	5.0	9.6	9.2	6.0	7.0	6.0	7.0	7.0
Wisconsin	3.8	3.8	3.9	3.9	4.9	3.7	4.1	5.5	5.0	5.0	4.9	5.2
U.S. total	21.9	20.7	22.9	23.0	22.9	24.2	25.0	24.8	27.2	29.3	26.5	27.6
<i>- Million pounds -</i>												
Production:												
Arkansas	2	2	2	2	2	1	1	1	1	1	1	1
California	632	624	754	774	788	823	864	867	987	1,097	1,032	1,138
Florida	98	103	87	106	91	110	125	138	117	132	141	138
Louisiana	4	4	4	3	3	4	5	4	6	6	12	11
Michigan	22	16	19	16	14	14	13	12	14	13	13	11
New Jersey	5	5	5	6	4	4	3	2	2	2	3	2
New York	13	14	15	17	18	16	12	13	17	19	11	23
North Carolina	6	9	8	7	7	8	13	9	13	12	13	11
Ohio	13	10	8	9	6	7	7	6	7	5	7	6
Oregon	58	79	61	50	64	94	101	65	66	62	61	62
Pennsylvania	8	7	5	5	6	7	8	9	7	6	6	5
Washington	19	19	21	21	14	24	22	11	13	8	11	11
Wisconsin	6	6	6	6	6	4	4	6	6	6	5	6
U.S. total	883	897	994	1,022	1,023	1,117	1,179	1,142	1,254	1,369	1,315	1,424

Source: National Agricultural Statistics Service, USDA.

Table 6--California strawberry area, 1970-93

Table 6 California Strawberry Area, 1970-93							
Years	Southern districts			Northern districts			Total
	San Diego	Orange and Los Angeles	Oxnard	Santa Maria	Watsonville and Salinas	Fresno	
-- Acres --							
1970	550	1,980	1,040	700	3,790	440	8,500
1971	740	1,830	1,270	610	3,420	430	8,300
1972	640	1,720	1,370	680	3,000	390	7,800
1973	640	1,820	1,530	690	3,070	350	8,100
1974	560	2,060	1,930	770	3,260	320	8,900
1975	670	1,900	2,100	820	4,210	300	10,000
1976	640	2,160	2,320	860	4,550	270	10,800
1977	640	2,810	2,340	870	4,590	350	11,600
1978	760	2,640	3,290	910	5,060	240	12,900
1979	790	2,260	2,600	910	4,670	270	11,500
1980	800	2,150	2,500	1,100	4,270	180	11,000
1981	790	2,360	2,420	960	4,210	160	10,900
1982	1,000	2,840	2,250	1,090	4,160	260	11,600
1983	1,200	3,000	2,300	1,200	5,040	260	13,000
1984	1,200	3,270	2,700	1,400	5,180	350	14,100
1985	1,300	3,200	3,050	1,790	4,930	330	14,600
1986	1,300	3,410	3,000	1,850	5,720	320	15,600
1987	1,100	3,350	3,250	2,400	6,450	250	16,800
1988	1,100	2,950	3,550	3,200	6,650	200	17,650
1989	1,100	2,900	3,500	4,200	7,950	250	19,900
1990	900	2,600	3,900	4,600	7,650	350	20,000
1991	500	2,000	4,400	4,500	8,700	500	20,600
1992	431	1,971	5,044	6,395	9,619	587	24,047
1993	398	2,128	4,760	6,744	10,445	554	25,029

Source: California Strawberry Commission (since 1990) and California Agricultural Statistics.

Table 7--U.S. strawberry prices received by growers, major States, by use, 1970-93

Year	California			Florida	Oregon		
	Fresh	Processed	Total	Fresh	Fresh	Processed	Total
-- Cents/pound --							
1970	23.7	15.3	21.6	29.4	24.0	15.6	15.9
1971	25.9	14.0	23.2	34.9	23.1	14.7	15.1
1972	25.8	15.7	23.7	31.6	28.8	17.2	17.8
1973	29.2	18.9	26.2	43.0	32.1	23.4	23.9
1974	30.7	18.3	27.3	38.1	36.1	24.5	25.6
1975	33.9	18.7	29.5	42.3	32.9	22.0	23.0
1976	36.9	22.9	32.2	42.2	35.2	27.5	28.5
1977	38.2	20.8	32.3	41.1	36.0	27.6	28.5
1978	33.2	15.9	28.7	57.4	33.0	26.3	27.0
1979	40.2	26.5	36.0	57.7	41.0	33.0	33.7
1980	46.3	24.2	39.4	58.8	45.0	31.9	33.1
1981	47.1	25.6	41.4	41.5	45.8	34.4	35.4
1982	55.7	30.9	47.0	53.7	54.0	43.0	43.9
1983	53.2	28.5	44.8	51.2	55.0	38.0	39.0
1984	49.1	17.6	42.3	44.8	54.0	22.5	24.9
1985	51.9	16.9	43.2	57.8	53.0	29.0	31.1
1986	58.2	22.6	48.9	55.3	65.0	44.2	45.8
1987	58.0	26.7	49.5	60.8	60.0	32.0	33.7
1988	52.0	23.0	45.1	59.1	62.0	28.9	31.0
1989	49.3	23.0	42.9	66.9	68.0	34.7	37.8
1990	50.5	25.0	42.3	64.6	61.0	44.9	46.3
1991	50.9	22.9	42.4	64.3	61.0	50.0	51.0
1992	59.2	22.8	49.7	67.2	63.0	31.5	34.6
1993	58.3	26.0	47.8	74.6	65.0	41.2	43.5

Source: National Agricultural Statistics Service, USDA.

Table 8--Monthly U.S. strawberry shipments, by source, 1980-93

Source/year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<i>-- Million pounds --</i>													
Total:													
1980	8.8	13.2	43.4	101.1	97.6	62.5	31.9	17.3	14.8	8.2	5.1	2.9	406.8
1981	4.1	18.5	51.6	110.0	116.6	64.2	30.5	22.3	19.2	4.8	1.6	1.8	445.2
1982	7.3	23.0	50.8	100.8	110.2	68.3	41.3	24.7	19.2	11.2	1.7	4.0	462.5
1983	6.6	13.8	39.8	115.7	126.2	70.5	34.1	23.5	19.1	4.1	1.2	3.4	458.0
1984	5.3	32.5	99.6	153.6	153.1	75.9	45.5	31.5	15.5	9.9	3.6	6.8	632.8
1985	8.2	18.6	76.9	173.0	184.2	78.6	35.3	30.6	20.9	9.0	3.0	4.5	642.8
1986	15.2	29.0	79.5	146.5	163.3	85.4	50.3	29.7	20.4	8.0	5.8	5.2	638.3
1987	14.3	16.1	61.2	187.5	153.8	83.9	54.8	39.3	25.2	11.9	4.3	5.7	658.0
1988	13.6	28.3	108.6	178.9	152.1	105.3	68.4	47.1	30.8	20.2	7.2	8.7	769.2
1989	18.1	21.0	80.7	185.2	181.4	82.6	66.1	56.2	32.5	17.6	8.6	9.4	759.4
1990	16.9	32.6	62.8	163.1	176.5	101.3	83.5	57.7	34.8	25.3	14.2	16.3	785.0
1991	16.3	32.1	61.1	171.8	176.7	136.9	95.5	68.3	57.6	38.2	14.2	12.6	881.3
1992	17.6	35.5	83.8	200.6	177.7	103.2	85.8	49.5	47.2	33.9	7.4	8.4	850.6
1993	19.4	24.7	104.1	169.1	171.5	127.6	93.0	69.0	64.9	32.5	48.7	9.6	934.1
California:													
1980	0.1	4.0	25.6	97.1	97.6	62.2	31.3	17.3	14.8	8.2	3.9	0.2	362.3
1981	0.4	11.4	29.9	87.8	116.6	63.8	29.5	22.3	19.2	4.8	1.0		386.7
1982	0.2	9.4	23.5	93.2	109.8	68.1	41.1	23.5	19.2	11.2	0.9		400.1
1983	0.2	10.3	25.9	88.5	124.7	70.4	33.4	23.5	19.1	4.1	0.5		400.6
1984	1.7	30.4	74.9	139.4	151.6	75.4	45.5	31.5	15.5	9.8	1.9		577.6
1985	0.3	14.8	50.1	161.5	183.1	78.4	34.8	30.6	20.7	8.6	1.1		584.0
1986	8.9	26.4	58.2	132.8	159.7	84.7	50.2	29.7	20.4	7.6	3.7	0.8	583.1
1987	5.9	11.5	37.3	166.6	148.4	81.5	53.9	38.5	24.9	11.5	2.0	0.2	582.2
1988	1.2	18.3	75.4	162.7	145.8	100.3	67.6	47.0	30.7	19.5	5.2	0.6	674.3
1989	2.8	7.5	40.9	175.6	177.2	80.6	65.6	56.2	32.5	17.2	6.1	3.9	666.1
1990	9.1	16.0	35.0	150.5	172.8	99.6	83.4	57.7	34.8	24.8	11.5	5.6	700.8
1991	2.7	14.8	33.2	163.4	172.7	133.8	95.0	68.3	57.6	38.2	12.1	3.7	795.5
1992	6.7	16.9	52.1	187.5	175.5	102.5	85.7	49.5	47.2	33.8	5.2	1.5	764.1
1993	3.5	11.6	61.4	149.3	158.6	123.2	93.0	69.0	64.9	31.9	46.2	1.2	813.8
Florida:													
1980	4.8	5.4	17.2	4.0								0.2	31.6
1981	2.0	6.0	20.9	22.2								0.3	51.4
1982	6.9	13.6	27.0	7.6	0.3							2.1	57.5
1983	5.7	2.8	13.6	27.2	1.5							1.3	52.1
1984	1.4	1.6	24.5	14.2	1.4							3.8	46.9
1985	6.5	2.3	26.4	10.7	1.1							2.1	49.1
1986	4.5	1.5	19.4	12.0	1.9							3.2	42.5
1987	6.1	1.7	18.5	12.0	1.6	0.1						3.2	43.2
1988	9.6	6.1	23.7	9.2	1.0						0.3	4.7	54.6
1989	9.7	7.6	32.8	2.8	0.3						0.4	3.7	57.3
1990	4.2	13.8	21.4	4.0	0.3						0.5	8.3	52.5
1991	9.6	11.3	23.2	3.2	0.1						0.4	6.2	54.0
1992	8.4	16.1	26.4	8.3	0.3						0.4	4.1	64.0
1993	10.5	8.5	24.7	7.4	2.5						0.3	4.0	57.9
Mexico:													
1980	3.8	3.8	0.6								1.0	2.2	11.4
1981	1.6	1.1	0.8				0.1				0.4	1.0	5.0
1982	0.1	0.0	0.3	0.1	0.2						0.5	1.1	2.3
1983	0.4	0.7	0.3								0.3	1.6	3.3
1984	1.7	0.4	0.1							0.1	1.7	2.2	6.2
1985	1.0	1.4	0.4	0.6		0.1				0.2	1.8	1.3	6.8
1986	1.3	1.0	1.8	1.7	1.7	0.6				0.3	1.5	0.8	10.7
1987	2.0	2.6	5.4	8.9	3.8	2.0	0.8	0.8	0.3	0.2	1.1	1.3	29.2
1988	2.6	3.5	9.4	7.0	5.3	4.6	0.8	0.1	0.1	0.4	1.2	1.8	36.8
1989	4.1	4.8	6.8	6.8	3.9	2.0	0.5				0.8	1.0	30.7
1990	2.7	2.5	6.4	8.6	3.4	1.6					0.9	1.4	27.5
1991	3.1	5.4	4.3	5.2	3.9	3.1	0.5				1.3	2.1	28.9
1992	1.8	2.1	5.3	4.8	1.9	0.7	0.1				0.7	1.8	19.2
1993	2.3	2.3	9.0	5.6	4.7	2.2					0.3	1.6	28.0

Empty data cells indicate that there were no shipments reported for the month.

Source: Agricultural Marketing Service. USDA.



**Table 9--Monthly prices received by growers for fresh strawberries, 1980-93**

Month	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
<i>-- Dollars per pound --</i>														
January	0.62	0.82	0.68	0.81	1.40	0.89	0.97	0.90	0.80	0.83	1.15	0.93	1.10	0.99
February	0.69	0.59	0.61	0.77	0.67	0.83	0.85	1.18	0.76	0.94	0.83	0.91	0.80	0.94
March	0.61	0.51	0.56	0.70	0.57	0.61	0.63	0.72	0.59	0.68	0.74	0.63	0.70	0.62
April	0.43	0.43	0.59	0.47	0.39	0.46	0.50	0.46	0.41	0.45	0.50	0.60	0.49	0.54
May	0.45	0.42	0.50	0.47	0.41	0.40	0.43	0.50	0.50	0.35	0.35	0.50	0.41	0.50
June	0.46	0.42	0.48	0.47	0.49	0.45	0.53	0.55	0.45	0.56	0.47	0.37	0.64	0.57
July	0.42	0.53	0.52	0.57	0.51	0.71	0.55	0.56	0.50	0.31	0.41	0.47	0.50	0.43
August	0.47	0.57	0.66	0.68	0.52	0.58	0.84	0.54	0.55	0.35	0.50	0.35	0.89	0.61
September	0.48	0.43	0.51	0.54	0.78	0.58	0.83	0.68	0.60	0.65	0.55	0.35	0.61	0.64
October	0.52	0.70	0.63	1.20	1.10	0.99	1.44	1.16	0.70	0.95	0.75	0.55	0.71	0.75
November	0.61	0.91	1.25	--	--	1.39	1.22	1.46	1.60	1.65	0.96	1.10	1.16	0.98
December	--	--	--	0.85	--	1.10	1.22	1.30	1.15	1.16	0.90	0.95	1.33	1.28

-- = Insufficient marketings to establish price.

Source: National Agricultural Statistics Service, USDA.

**Table 10--Monthly retail prices for fresh strawberries, 1980-93**

Month	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
<i>-- Dollars per pound --</i>														
January	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February	--	--	--	--	--	--	--	--	--	--	1.64	1.47	1.43	1.47
March	--	0.89	1.02	--	0.91	1.02	0.64	--	1.18	1.22	1.34	1.27	1.17	1.26
April	0.65	0.69	0.91	0.73	0.66	0.81	0.80	0.94	0.69	0.97	1.11	1.11	0.96	0.91
May	0.61	0.64	0.73	0.71	0.65	0.65	0.72	0.62	0.92	0.63	0.78	0.98	0.83	0.87
June	0.66	0.70	0.78	0.75	0.78	0.77	0.84	0.96	0.94	1.06	0.99	0.92	1.05	1.07
July	--	0.77	0.78	0.86	0.83	0.91	0.90	1.07	1.06	1.12	0.97	0.95	0.99	1.01
August	--	--	--	--	0.94	--	1.08	1.03	0.97	0.99	1.08	0.96	1.19	1.07
September	--	--	--	--	--	--	--	--	1.22	1.09	1.21	1.01	1.47	1.15
October	--	--	--	--	--	--	--	--	--	--	--	1.04	1.39	1.26
November	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--	--	--	--	--	--	--	--

-- = Insufficient marketings to establish price.

Source: Bureau of Labor Statistics, U.S. Department of Commerce.

**Table 11--Monthly wholesale prices for fresh strawberries in New York, 1980-93**

Month	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
<i>-- Dollars per pound --</i>														
January	0.79	1.17	0.81	1.41	1.37	1.40	1.28	1.88	1.04	1.23	1.52	1.69	1.66	1.58
February	0.93	1.01	1.28	1.66	1.05	1.37	1.31	1.88	1.37	1.60	1.32	1.63	1.22	1.46
March	0.74	0.85	0.80	1.54	0.75	1.01	1.20	1.84	1.35	1.07	1.53	1.57	1.02	0.77
April	0.75	0.67	0.77	0.65	0.51	0.79	0.94	0.64	0.67	0.81	1.02	1.14	0.67	0.79
May	0.77	0.70	0.75	0.94	0.57	0.62	0.85	0.85	0.97	0.80	0.74	1.02	0.81	1.50
June	0.77	0.83	0.84	0.78	0.83	0.78	0.92	0.93	0.88	1.05	1.01	0.71	1.02	1.22
July	0.78	1.00	0.83	1.01	0.83	1.39	1.15	1.00	0.86	0.73	0.91	0.86	0.88	0.83
August	0.99	1.05	1.22	1.21	1.10	1.24	1.42	0.80	0.87	0.84	0.93	1.13	1.06	0.96
September	0.75	0.80	0.78	1.13	1.50	1.00	1.05	0.92	1.23	0.96	1.03	0.67	1.09	0.86
October	0.80	1.47	1.03	1.78	1.01	1.97	1.92	1.10	1.22	1.57	1.06	0.89	0.89	1.13
November	0.79	1.48	2.13	2.13	2.05	1.77	1.75	2.29	1.15	1.59	1.47	1.73	2.36	1.69
December	1.67	2.11	1.62	1.84	1.50	1.70	2.07	2.00	1.28	1.63	1.29	1.28	1.60	1.61

Source: Agricultural Marketing Service, USDA.

**Table 12--Monthly wholesale prices for fresh strawberries in Chicago, 1980-93**

Month	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
<i>-- Dollars per pound --</i>														
January	0.83	1.34	1.00	1.00	1.95	1.37	1.09	1.24	1.10	1.07	1.51	1.24	1.71	1.43
February	0.92	0.96	1.10	1.50	1.01	1.10	0.95	1.53	1.30	1.29	1.26	1.41	1.25	1.26
March	0.84	0.88	0.78	1.01	0.71	0.91	1.06	1.32	1.09	1.21	1.16	1.14	1.02	0.83
April	0.77	0.68	0.76	0.59	0.53	0.91	0.79	0.73	0.73	0.68	0.94	0.92	0.68	0.79
May	0.61	0.62	0.79	0.71	0.69	0.62	0.64	0.82	0.93	0.80	0.72	0.94	0.73	1.09
June	0.70	0.77	0.74	0.69	0.93	0.65	0.88	0.94	0.87	1.06	0.86	1.00	1.06	1.07
July	0.62	0.88	0.71	0.98	0.76	0.96	0.94	0.83	1.08	0.78	0.83	0.88	0.83	0.71
August	0.80	0.83	1.11	0.89	0.76	0.90	1.24	0.86	1.01	0.82	0.69	0.63	1.27	0.76
September	0.58	0.61	0.71	0.84	1.34	1.00	1.10	1.03	1.07	0.97	0.97	0.64	0.83	0.91
October	0.58	0.89	0.79	1.56	1.07	1.42	1.46	1.32	0.95	1.26	0.84	0.91	0.76	1.00
November	0.66	1.80	1.34	1.73	1.25	1.59	1.27	2.09	1.24	1.64	1.24	1.40	1.98	1.16
December	1.45	1.44	1.11	2.08	1.56	1.56	1.81	2.50	1.52	1.47	1.04	1.23	1.76	1.98

Source: Agricultural Marketing Service, USDA.

**Table 13--Monthly disappearance of frozen strawberries in California, 1980-93**

Month	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
<i>-- Million pounds --</i>														
January	20.6	21.1	16.7	20.4	6.6	15.2	30.5	23.8	25.7	32.0	28.3	32.3	34.6	19.9
February	24.4	21.2	19.0	17.6	28.3	22.7	16.0	29.9	30.9	29.7	23.4	26.6	26.3	24.8
March	28.3	23.6	29.0	33.1	29.7	26.0	26.0	37.2	28.6	40.6	26.9	22.9	35.0	35.7
April	21.6	29.9	N.A.	29.1	20.3	18.6	23.1	30.5	30.9	22.5	5.0	16.2	40.2	34.3
May	32.5	49.7	N.A.	39.2	68.0	43.7	50.7	40.3	37.3	23.2	72.0	47.7	24.6	59.5
June	29.2	48.3	N.A.	62.3	44.1	35.8	36.2	42.1	74.8	58.5	43.7	56.9	57.4	80.9
July	30.6	23.7	N.A.	24.6	6.4	27.1	39.0	43.1	13.9	55.6	47.3	58.6	48.6	50.8
August	31.9	21.7	N.A.	24.8	27.0	33.2	22.7	19.9	29.8	36.5	43.3	67.7	26.2	17.8
September	20.1	18.7	N.A.	21.1	16.9	3.0	30.2	23.5	27.8	21.8	17.0	20.1	32.4	16.7
October	30.5	24.1	N.A.	18.6	26.3	25.5	18.8	35.5	26.3	24.6	35.7	39.7	39.8	30.8
November	19.2	23.2	N.A.	20.2	17.0	32.6	24.9	31.3	53.9	25.2	38.3	26.0	25.6	34.6
December	21.7	15.9	N.A.	7.2	33.9	23.1	23.4	23.2	21.5	17.2	16.9	27.3	28.6	32.2
Total	310.6	321.1	335.4	338.2	324.4	306.5	341.7	380.2	401.5	387.5	397.8	442.4	419.6	438.0

N.A. = Not available.

Source: Processing Strawberry Advisory Board of California.

**Table 14--U.S. frozen strawberry stocks, 48-State total, end of month, 1980-93**

Month	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
<i>-- Million pounds --</i>														
January	115.1	133.0	99.2	120.7	171.5	152.8	137.7	128.0	212.2	205.4	142.7	174.9	189.8	161.0
February	98.0	113.4	82.4	105.3	151.7	132.7	124.0	115.7	164.1	182.1	130.6	156.4	167.4	145.0
March	90.9	107.3	69.8	91.4	137.6	119.5	110.2	100.5	161.9	154.5	123.5	149.4	141.3	124.7
April	103.3	105.3	N.A.	86.9	133.2	112.4	104.2	141.0	164.5	151.2	146.7	151.2	162.7	147.1
May	106.4	115.1	N.A.	95.3	148.4	149.4	111.3	192.6	165.0	185.1	192.1	191.4	244.9	205.0
June	198.8	165.1	133.2	225.1	213.7	252.2	233.5	311.8	310.0	260.1	298.4	272.2	293.8	305.8
July	240.7	190.6	N.A.	241.9	255.2	257.9	243.0	330.4	353.7	257.9	311.4	330.0	285.2	310.2
August	225.2	175.7	N.A.	232.0	244.3	242.5	226.7	319.3	337.8	245.6	295.6	307.1	270.1	312.4
September	210.8	171.8	178.9	220.7	229.5	232.0	198.8	301.5	310.6	228.2	282.0	299.1	248.2	300.4
October	187.5	153.0	N.A.	202.7	204.8	212.0	187.7	280.0	266.1	205.4	248.0	267.4	223.8	270.9
November	172.5	130.3	N.A.	183.3	189.2	188.8	165.9	258.4	258.8	185.3	213.7	243.8	199.6	245.9
December	151.9	115.2	139.9	176.6	166.0	167.1	146.6	236.0	235.6	167.2	198.3	219.9	173.8	214.1

N.A. = Not available.

Source: National Agricultural Statistics Service, USDA.

**Table 15--U.S. supply and utilization of fresh-market strawberries, 1970-93**

Year	Utilized	imports	Total	Exports	Consumption	
	production		supply		Total	Per capita
			-- Million pounds --			Pounds
1970	316.4	51.1	368	11.8	<b>356</b>	1.73
1971	340.4	51.3	392	11.6	380	1.83
1972	321.1	43.2	364	14.5	350	1.67
1973	316.4	38.9	355	20.4	335	1.56
1974	368.0	43.7	412	21.0	391	1.83
1975	370.0	34.6	405	16.4	388	1.80
1976	360.1	21.6	382	20.6	361	1.66
1977	418.8	24.7	444	22.3	421	1.91
1978	477.9	33.7	512	39.2	472	2.12
1979	436.0	31.0	467	39.0	428	1.90
1980	482.1	12.7	495	47.1	<b>448</b>	1.97
1981	537.5	6.7	544	44.4	500	2.17
1982	589.6	4.5	594	44.0	550	2.37
1983	585.4	<b>5.1</b>	591	46.4	544	2.32
1984	748.2	8.8	757	56.3	701	2.96
1985	754.1	9.6	764	51.5	712	2.99
1986	734.8	13.0	748	51.5	696	2.89
1987	780.4	33.2	814	57.1	756	3.12
1988	855.5	39.4	895	78.0	817	3.33
1989	861.6	36.0	898	93.0	805	3.25
1990	864.2	32.2	896	85.7	811	3.24
1991	971.5	31.5	1,003	95.2	908	3.59
1992	980.3	23.8	1,004	102.3	902	3.53
1993	987.6	31.4	1,019	102.1	917	3.55

Source: Economic Research Service, USDA.

**Table 16--U.S. supply and utilization of frozen strawberries, 1970-93**

Table 10. Crude supply and utilization of hydrogen cyanide, 1970-93								
	Industry		Beginning	Total	Ending		Consumption	
Year	pack 1/	Imports	stocks	supply	stocks 2/	Exports	Total	Per capita
				-- Million pounds --				Pounds
1970	201.6	109.7	127.8	439.1	166.2	1.3	271.6	1.32
1971	199.4	84.6	166.2	450.2	151.9	1.6	296.7	1.43
1972	146.8	85.2	151.9	383.9	104.4	2.2	277.3	1.32
1973	166.6	113.7	104.4	386.7	120.8	4.3	261.6	1.23
1974	170.4	117.1	120.8	408.3	146.2	5.4	254.7	1.19
1975	183.9	97.5	148.2	429.6	124.3	8.9	297.3	1.38
1976	216.2	49.6	124.3	390.1	104.0	15.8	270.3	1.24
1977	220.4	97.0	104.0	421.4	153.1	8.2	260.1	1.18
1978	159.8	97.6	153.1	410.5	108.7	9.5	292.3	1.31
1979	190.6	112.1	108.7	411.4	132.5	5.2	273.7	1.22
1980	253.1	83.5	132.5	469.1	151.9	4.4	312.8	1.37
1981	210.6	60.1	151.9	422.6	115.2	6.6	300.8	1.31
1982	272.7	34.9	115.2	422.8	139.9	7.1	275.8	1.19
1983	292.7	42.6	139.9	475.2	176.6	5.9	292.7	1.25
1984	231.4	50.9	176.6	458.9	166.0	8.0	284.9	1.21
1985	229.2	59.7	166.0	464.9	167.1	6.6	281.2	1.18
1986	237.6	52.5	167.1	457.2	146.6	8.5	302.1	1.26
1987	334.4	75.3	146.6	556.3	236.0	10.8	309.5	1.27
1988	274.6	64.3	236.0	574.9	235.2	17.8	321.9	1.31
1989	238.2	55.0	235.2	528.4	167.2	20.5	340.7	1.38
1990	305.9	72.1	167.2	545.2	198.3	32.8	314.1	1.26
1991	330.2	70.5	198.3	599.0	219.9	26.1	353.0	1.40
1992	268.5	58.2	219.9	546.6	173.8	30.0	342.8	1.34
1993	424.1	56.6	173.8	654.5	214.3	40.4	399.8	1.55

1/ From The American Frozen Food Institute "Pack Statistics."

2/ From National Agricultural Statistics Service, USDA "Cold Storage" reports, December 31 stocks.

Source: Economic Research Service, USDA.

**Table 17--Monthly U.S. imports of fresh and frozen strawberries, 1980-93**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<i>-- Million pounds --</i>													
1980	7.73	8.50	17.01	15.16	13.19	11.70	6.73	3.79	2.15	3.76	3.20	3.23	96.15
1981	3.95	3.63	14.42	13.90	8.63	7.39	5.95	2.47	1.31	1.62	1.41	2.13	66.80
1982	1.68	1.00	4.69	8.84	6.59	6.08	3.60	1.71	0.78	1.01	1.06	2.28	39.31
1983	3.59	2.66	3.85	8.08	7.30	7.97	4.54	1.57	1.79	1.24	1.31	3.73	47.65
1984	2.99	4.47	7.52	6.68	6.22	6.05	7.15	3.27	4.23	2.48	3.62	5.04	59.73
1985													
1986	4.65	6.61	9.66	12.43	8.05	8.36	5.70	2.08	2.28	1.41	4.21	4.38	69.81
1987	3.31	2.78	11.83	11.44	9.39	4.73	5.04	2.59	1.57	1.77	4.01	7.19	65.64
1988	6.16	16.26	22.83	24.45	10.36	9.16	4.27	2.22	2.06	2.85	3.29	4.19	106.10
1989	5.75	8.52	18.23	18.66	15.72	15.12	6.53	2.46	2.21	2.05	3.53	5.24	104.02
1990	8.67	11.09	16.12	14.72	12.85	8.45	3.41	2.01	3.07	2.80	3.65	4.69	91.52
1991													
1992	9.63	12.45	24.23	21.04	13.99	7.27	3.32	1.20	1.36	1.64	3.61	4.54	104.26
1993	7.78	15.48	18.66	16.33	14.47	9.94	3.52	1.81	2.17	1.85	3.17	6.81	101.99
1994	6.50	6.18	15.59	18.05	8.38	7.30	3.86	3.15	2.76	1.15	3.38	5.69	81.99
1995	7.18	9.14	18.54	18.12	13.38	7.74	2.78	1.50	1.24	1.37	2.13	4.69	87.93

Source: Bureau of the Census, U.S. Department of Commerce.

**Table 18--Monthly U.S. imports of fresh and frozen strawberries from Mexico, 1980-93**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<i>-- Million pounds --</i>													
1980	7.28	8.16	16.35	14.61	12.81	11.23	5.91	3.50	1.78	3.14	2.31	2.31	89.40
1981	3.02	3.50	13.56	13.40	7.89	6.64	4.89	2.05	0.97	0.97	0.90	1.05	58.65
1982	1.12	0.92	4.88	8.68	5.42	4.86	2.25	1.34	0.34	0.19	0.48	1.44	31.72
1983	2.77	2.11	3.09	7.19	6.25	6.15	2.76	1.06	1.28	0.87	0.45	2.88	36.66
1984	1.93	3.60	6.44	5.75	5.47	5.30	5.13	2.99	3.58	1.65	2.64	3.71	48.19
1985													
1986	3.34	5.98	8.77	11.48	7.23	7.57	4.74	0.84	0.86	0.45	1.95	2.01	55.23
1987	1.81	1.76	10.09	9.81	8.71	3.83	4.70	1.22	0.43	0.90	2.47	5.23	50.95
1988	4.52	13.89	21.02	22.66	9.21	7.99	3.26	2.01	1.66	2.37	1.82	2.65	93.05
1989	4.88	7.15	16.98	16.93	14.36	13.30	5.65	1.92	1.85	1.50	2.26	3.07	89.86
1990	6.45	9.63	15.06	13.69	11.82	7.72	3.04	0.95	0.62	0.57	1.99	3.23	74.79
1991													
1992	6.60	10.84	22.63	18.85	12.86	6.74	2.89	0.88	1.05	0.68	1.78	2.99	88.68
1993	5.06	13.13	17.50	15.02	13.01	8.96	2.50	0.60	1.28	1.27	1.98	5.53	85.83
1994	4.79	4.13	14.27	16.55	6.98	6.38	3.58	2.80	1.52	0.65	1.68	3.63	66.96
1995	5.74	7.59	17.58	16.72	12.46	7.33	2.52	1.03	0.74	0.67	0.58	2.91	75.89

Source: Bureau of the Census, U.S. Department of Commerce.

**Table 19--U.S. exports of fresh and frozen strawberries, by destination, 1980-93**

Year	Fresh strawberries				Frozen strawberries			
	Canada	Japan	Other	All	Canada	Japan	Other	All
<i>-- Million pounds --</i>								
1980	33.777	4.059	9.257	47.093	1.107	2.445	0.812	4.364
1981	37.933	0.516	5.909	44.358	1.777	3.437	1.347	6.561
1982	36.462	3.131	4.342	43.935	1.907	3.715	1.505	7.127
1983	40.270	3.040	3.066	46.376	2.848	1.960	1.078	5.656
1984	49.829	4.167	2.267	56.263	2.366	2.224	1.649	6.239
1985	46.698	3.664	1.069	51.451	2.332	3.596	0.702	6.632
1986	44.500	4.914	2.097	51.511	2.926	4.738	0.799	8.462
1987	49.318	5.466	2.333	57.117	3.469	6.524	0.828	10.821
1988	67.990	6.673	3.343	78.006	3.638	12.822	1.359	17.819
1989	74.678	7.434	10.847	92.959	4.244	14.799	1.428	20.471
1990	73.213	7.760	4.756	65.731	4.941	25.945	1.890	32.779
1991	79.774	8.395	7.046	95.215	6.252	16.310	3.537	26.099
1992	78.350	7.888	16.025	102.264	6.120	18.248	5.645	30.013
1993	78.509	8.746	14.804	102.056	8.631	26.356	5.432	40.420

Source: Fresh exports to Canada, 1980-89, from Statistics Canada; other from U.S. Department of Commerce.

**Table 20--Monthly U.S. exports of fresh strawberries, by destination, 1989-93**

Destination/ year 1/	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<i>-- 1,000 pounds --</i>													
World:													
1989	2,266	2,602	8,211	17,138	18,951	16,631	7,989	7,340	5,223	3,710	1,244	1,655	92,960
1990	2,369	3,836	5,901	15,520	19,825	9,312	7,900	7,294	5,196	4,605	2,244	1,818	85,730
1991	1,790	3,177	5,876	16,183	17,904	12,316	10,928	8,017	8,111	6,911	2,392	1,609	95,214
1992	2,239	3,915	7,917	21,066	20,594	11,565	9,418	7,531	8,195	6,886	1,758	1,180	102,264
1993	1,962	2,374	8,675	17,828	18,415	9,777	10,809	10,997	9,463	6,891	3,482	1,386	102,059
Average	2,125	3,181	7,316	17,547	19,138	11,920	9,409	8,218	7,238	5,801	2,224	1,530	95,645
Canada:													
1989	2,114	2,252	7,714	16,481	18,161	10,328	5,582	4,782	2,759	1,933	963	1,607	74,676
1990	2,026	3,526	5,724	15,369	19,437	8,435	5,596	5,053	2,794	2,195	1,493	1,655	73,215
1991	1,529	2,554	5,529	15,639	17,137	10,739	9,236	5,696	5,237	3,897	1,116	1,463	79,772
1992	1,664	3,099	7,431	20,243	18,464	9,547	4,616	4,234	3,895	3,293	861	1,092	78,350
1993	1,730	1,997	8,322	17,529	17,466	8,094	6,068	6,578	4,943	2,892	1,559	1,309	78,508
Average	1,813	2,665	6,944	17,052	18,137	9,429	6,202	5,269	3,926	2,824	1,198	1,425	76,904
Mexico:													
1989	1	0	0	0	34	14	175	188	205	35	6	0	658
1990	84	40	20	0	0	0	7	166	62	81	0	6	466
1991	92	35	115	26	30	54	41	142	121	100	3	14	773
1992	0	6	40	148	897	386	852	996	735	794	44	0	4,898
1993	0	130	3	59	165	468	1,710	2,041	1,989	1,057	285	3	7,901
Average	35	42	36	47	225	184	557	707	621	413	68	5	2,939

1/ 1989 revised to correct underreported exports to Canada

Source: Bureau of the Census, U.S. Department of Commerce.

**Table 21--World strawberry supply, selected countries, 1993 1/**

Country	Total production	Fresh imports	Fresh supply	Fresh exports	Processed use	Fresh consumption
<i>-- Million pounds --</i>						
United States	1,424.2	30.9	1,455.0	94.8	443.1	917.1
Poland	445.3	0.0	445.3	46.5	262.3	134.5
Japan	442.5	15.4	457.9	0.0	11.9	446.0
Mexico	158.7	0.0	158.7	22.0	61.7	75.0
Canada	64.4	83.8	148.2	0.1	17.4	130.7
Chile	35.3	0.0	35.3	0.0	8.8	26.5
Total	2,570.4	130.1	2,700.4	165.4	805.3	1,729.7
<i>-- Percent of total --</i>						
United States	55.4	23.7	53.9	57.3	55.0	53.0
Poland	17.3	0.0	16.5	29.3	32.6	7.8
Japan	17.2	11.9	17.0	0.0	1.5	25.8
Mexico	6.2	0.0	5.9	13.3	7.7	4.3
Canada	2.5	64.4	5.5	0.0	2.2	7.8
Chile	1.4	0.0	1.3	0.0	1.1	1.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

1/ Spain and Italy are also major strawberry producers for which supply data are not available (see table 23 for production).

Source: Foreign Agricultural Service, USDA.

**Table 22--World frozen strawberry supply, selected countries. 1993**

Country	Production	Imports	Beginning stocks	Supply	Exports	Ending stocks	Frozen consumption
<i>-- Million pounds --</i>							
United States	423.3	44.1	174.2	641.5	39.7	213.8	388.0
Poland	224.9	0.6	0.0	225.4	209.4	0.0	16.0
Japan	1.5	59.5	0.0	61.1	0.0	0.0	61.1
Mexico	61.7	0.0	0.0	61.7	33.1	0.0	28.7
Canada	8.4	20.7	4.6	33.7	0.1	4.2	29.4
Chile	8.8	0.0	0.2	9.0	6.5	0.1	2.4
Total	728.6	124.9	179.0	1,032.5	288.8	218.2	525.5
<i>-- Percent of total --</i>							
United States	56.1	35.3		62.1	13.7		73.8
Poland	30.9	0.5		21.8	72.5		3.0
Japan	0.2	47.7		5.9	0.0		11.6
Mexico	8.5	0.0		6.0	11.5		5.5
Canada	1.1	16.6		3.3	0.0		5.6
Chile	1.2	0.0		0.9	2.2		0.5
Total	100.0	100.0		100.0	100.0		100.0

Source: Foreign Agricultural Service, USDA.

Table 23--World strawberry production, selected years, 1970-93

Country 1/	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1991-93
-- Million pounds --																	
United States	496	550	702	740	883	893	991	1,019	1,019	1,117	1,179	1,142	1,254	1,369	1,312	1,402	1,361
Poland	207	352	396	423	466	420	409	467	588	737	550	593	532	579	451	429	486
Japan	293	364	426	424	439	434	437	431	442	463	484	475	479	470	474	476	473
Spain	23	60	218	214	204	221	311	360	418	508	497	564	455	399	481	468	450
Italy	206	295	496	381	366	350	326	363	372	422	417	452	415	422	411	422	418
USSR	275	163	227	267	220	265	243	265	282	276	280	287	265	276	265	269	270
Korean Republic	11	34	186	173	175	146	118	99	97	210	223	212	239	222	238	243	234
France	143	162	178	171	194	183	196	201	201	219	183	185	191	175	179	181	178
Mexico	280	152	172	181	119	156	140	125	100	156	173	186	236	194	146	148	163
Germany	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	118	117	118	118
Germany, Federal Republic	53	59	77	80	89	94	101	103	111	118	121	118	111	N.A.	N.A.	N.A.	
German Democratic Republic	42	59	71	81	80	81	75	81	65	81	63	69	52	N.A.	N.A.	N.A.	
Turkey	21	36	51	51	49	49	55	74	77	88	93	110	112	112	119	120	117
Ukraine	N.A.	N.A.	52	62	64	61	87	89	84	103	105	110	108	105	105	117	109
United Kingdom	99	100	118	114	124	128	129	117	107	119	115	105	115	109	106	110	108
Yugoslavia	25	35	40	38	49	53	53	62	60	78	95	103	112	99	88	55	81
Yugoslavia, Federal Republic	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	71	77	68	60	37	55
Bosnia Herzokovina	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	26	29	24	24	N.A.	24
Former Yugoslav Republic	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	7	12	10	6	6	7
Croatia	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	4	3	3	2	N.A.	3
Egypt	N.A.	N.A.	4	5	9	19	43	47	62	44	53	57	95	66	66	71	68
Belgium - Luxembourg	77	49	52	46	53	56	56	51	55	60	62	57	75	66	66	66	66
Netherlands	67	42	42	39	43	58	57	38	50	55	58	54	71	55	66	68	63
Canada	43	37	60	59	70	66	73	84	64	73	69	61	64	58	64	64	62
Czechoslovakia	22	62	38	39	47	52	47	59	47	61	55	72	69	63	56	N.A.	60
Slovakia	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	21	19	23	22	21	19	19	19
Romania	69	51	74	70	67	54	58	64	68	71	86	71	44	55	49	53	52
Bulgaria	69	34	49	46	44	31	45	24	32	28	34	39	42	38	29	33	33
Hungary	47	38	46	39	40	34	31	36	31	29	31	35	35	33	31	31	31
Norway	28	35	44	37	50	48	47	40	37	40	33	34	35	30	28	34	30
Israel	7	9	17	15	18	19	20	24	24	29	29	29	31	28	28	28	28
Austria	17	19	27	23	29	30	28	34	34	34	37	34	30	27	27	26	27
Chile	N.A.	N.A.	N.A.	N.A.	N.A.	2	4	9	13	14	15	26	33	24	20	26	24
Finland	7	9	13	27	34	34	19	23	23	18	20	21	24	20	27	23	23
Iran	N.A.	N.A.	0	0	1	0	2	4	2	12	15	23	18	21	21	22	21
Denmark	24	20	17	20	23	21	23	18	15	14	19	18	20	20	22	20	21
Lebanon	1	1	1	1	1	2	3	4	6	7	9	11	13	17	18	18	18
Argentina	5	9	12	13	13	12	12	12	11	16	17	17	17	17	17	18	17
Australia	8	6	7	7	8	9	9	10	12	11	10	11	12	16	16	18	17
Greece	12	18	30	36	24	22	21	19	10	13	14	15	19	15	17	17	16
Ireland	7	7	13	10	11	6	9	9	6	10	10	13	14	14	14	14	14
Switzerland	7	5	8	7	9	9	10	11	9	11	12	13	12	11	13	13	12
Taiwan	N.A.	N.A.	N.A.	N.A.	N.A.	10	12	12	12	12	11	10	11	10	11	11	11
South Africa	2	6	7	6	6	8	7	8	9	12	11	15	10	10	10	11	10
Venezuela	1	5	8	8	9	10	10	11	11	10	9	9	9	9	9	9	9
New Zealand	10	7	12	9	10	10	10	10	11	9	7	9	9	9	8	8	8
World	2,716	2,905	3,957	3,923	4,094	4,114	4,267	4,471	4,636	5,388	5,284	5,461	5,484	5,382	5,221	5,241	5,282

N.A. = Not applicable or not available.

1/ Sorted by average 1991-93 production.

Source: Food and Agriculture Organization, United Nations.